DOMESTIC ENGINEERING

Recovery in Sight for Building Industry

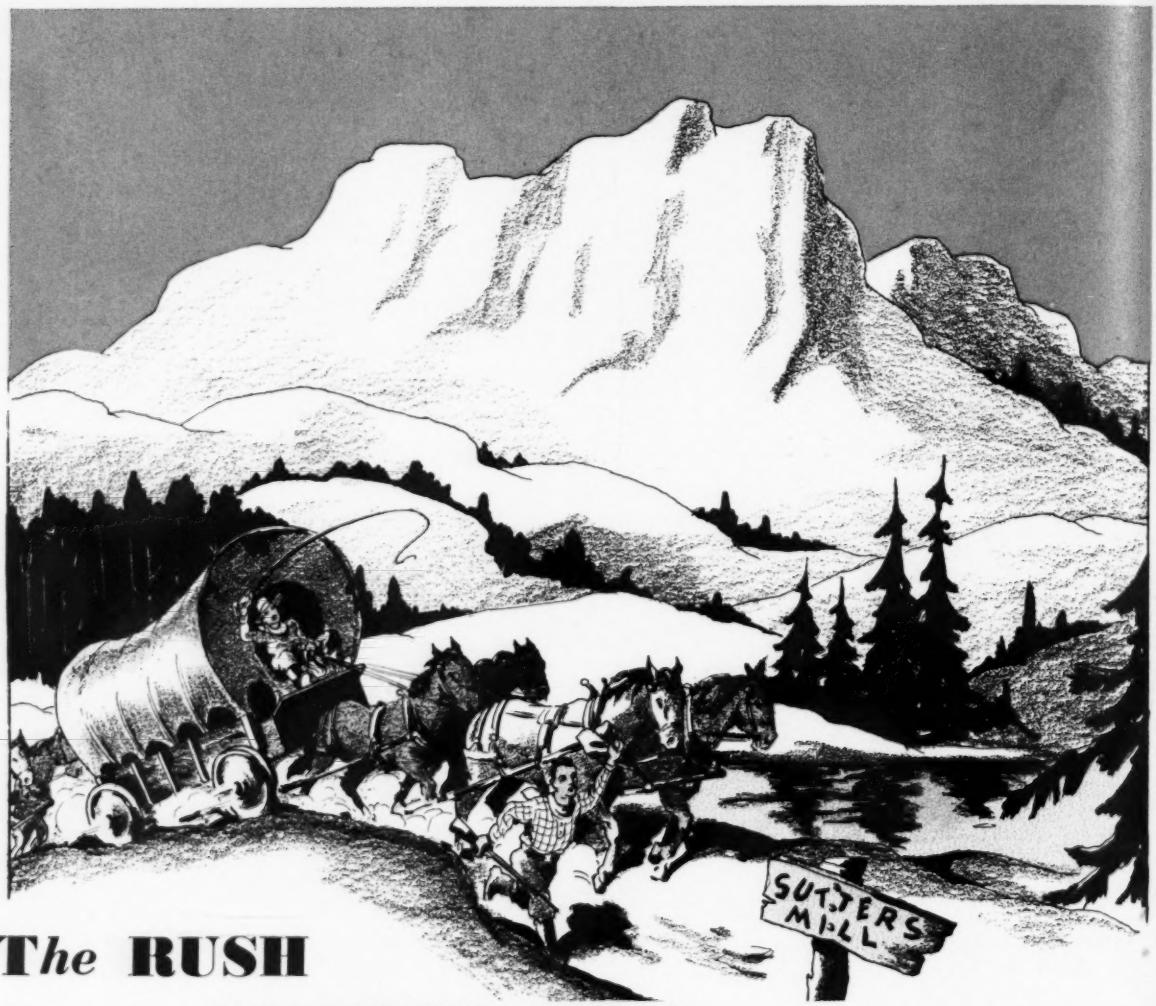
What 10,000 Daily Sales Talks Show

AUTOMATIC HEAT AND AIR CONDITIONING SECTION—PAGE 53

BEER EQUIPMENT DEALER SECTION PAGE 123

OCTOBER 1933

Plumbing & Heating Contracting and Merchandising



The RUSH *is on to* SUTTERS MILL...

1934 . . . . What Sutters Mill held in the way of gold for the pioneers of '49—1934 is holding for the manufacturers who are alert to what is happening around them.

"AUTO SALES ARE HOLDING STEADY FOR AUGUST" . . . . "FREIGHT LOADINGS GAIN 34,654 CARS" . . . . "AUGUST STORE SALES 16 PER CENT AHEAD OF 1932" . . . . "CAR-LOADINGS EXCEED 1932 TOTAL" . . . . "RETAIL BUYING RISES IN FACE OF RISING PRICES" . . . .

The multitudes are buying and the buying will grow and grow and those manufacturers now laying their plans will get their share of it.

Many changes have taken place in jobbing houses and among the plumbing and heating contractors. New jobbers and new plumbing and heating contractors will be on the lookout for new sources of supply.

The new 1934 PLUMBING AND HEATING CATALOG is being planned so that buyers wanting to know "where to buy" will have that information placed at their disposal with the least possible effort.

A larger and more complete edition than the 1933 edition, this new one will simplify tremendously the matter of locating sources of buying.

A directory section, new and simply laid out, will contain over 1300 items in constant use by plumbing and heating men. Under each item buyers will find trade names and the names of manufacturers. Every part of the section is being planned so as to be used to greater advantage by buyers. Illustrations and complete buying information will make it a very easy matter for jobbers and plumbers to buy.

In another section, the Catalog section, will be found cataloged the plumbing and heating material of hundreds of manufacturers. Here will be found the most complete collection of plumbing and heating material available anywhere—all in one big consolidated catalog—indexed and cross indexed for ready reference—a complete showing of practically every item that users of the Catalog will ever have call for.

Because of its position as the only consolidated catalog of buying information available in the plumbing and heating industry and because of its acceptance and constant use by jobbers and plumbing and heating contractors, your catalog in the PLUMBING AND HEATING CATALOG will assure you of preferred consideration before your buying market.

The 1934 Catalog is now in the course of preparation. The rush is on! Manufacturers are awakening to the signs of returning business and are planning for their share of this returning business by scheduling their catalogs for appearance in the 1934 Catalog. You too, still have time to take advantage of this opportunity—but you must act quickly.

DOMESTIC ENGINEERING

PLUMBING & HEATING CATALOG

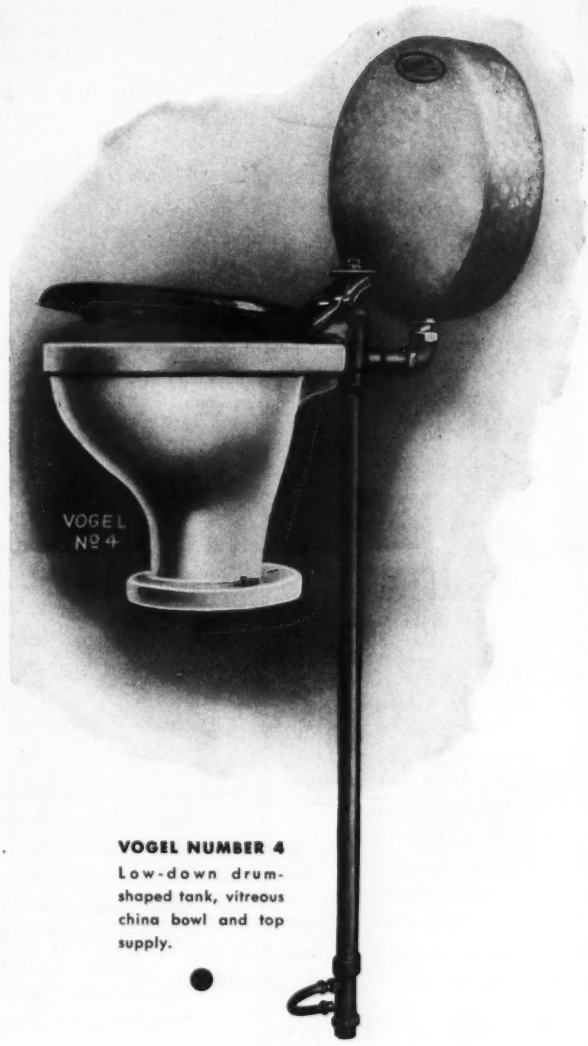
1900 PRAIRIE AVENUE CHICAGO, ILL.

A tough guy all dressed up is still just as tough . . .

. . . and the same thing applies to the new Vogel Number Four Frost-Proof Closet. It's all "dressed up" with a china bowl and a new low-down tank and top supply. But the valve is the same tried and tested Vogel Number One Frost-Proof Valve which plumbers have been installing for more than twenty-five years.

Your customers like the looks of the new Vogel Number Four, and you can give it the same unqualified endorsement as the Number One, and make a good profit as plumbers always have made on all Vogel Products.

Literature on the new Number 4 is available—imprinted with your name and address

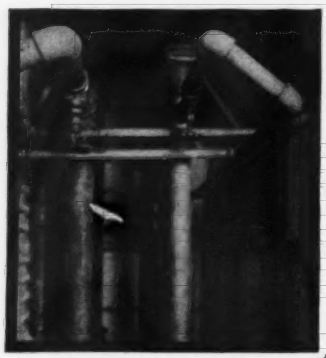


VOGEL NUMBER 4
Low-down drum-shaped tank, vitreous china bowl and top supply.

NRA MEMBER U.S. WE DO OUR PART

JOSEPH A. VOGEL CO.
Wilmington, Del. St. Louis, Mo.

VOGEL PATENTED *Frost-Proof Products*



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NRA MEMBER U.S. WE DO OUR PART

Solving

THE PROBLEM OF FITTING THE BATHROOM OR DOWNSTAIRS LAVATORY

into small space!

While there is an unlimited. market for bathroom modernization, it is one with a limited space problem. The millions of homes today without bathrooms must make space for them — space taken from hall, closets or other rooms. The millions of other homes that need an extra bathroom or downstairs lavatory must also find space to accommodate them.

There is no place, and no necessity, in the average home for large, sprawling bathroom fixtures. "Standard" has met the need with beautiful, efficient space-saving fixtures.

Illustrated is a new model of the space-saving Marlton lavatory. Its roomy bowl measures 17¼" by 10⅜", yet it is only 26" long over all and only 14¾" from wall to front.

THE NEW "Standard" Marlton LAVATORY

MARLTON CONSUMERS' PRICE
IN WHITE $38.50
IN COLOR $48.75
Prices subject to change without notice.

THE NEW MARLTON AND ONE-PIECE CLOSET

The new Marlton used in combination with the compact space-saving One-Piece closet makes an ideal arrangement for the confined downstairs lavatory, or the small bathroom.

Standard Sanitary Mfg. Co.
PITTSBURGH, PA.
Division of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

NRA WE DO OUR PART

RIDE WITH THE TIDE OF GROWING POPULARITY

WITH THE NEW

ARCOLA

AMERICAN RADIATOR HEATING

AS LOW AS $99.50 Including Radiators Plus installation

From all sections of the country... from cities, towns and hamlets... comes the enthusiastic comment of Dealers and Jobbers for the New Arcola.

"Now," they say, "we can not only sell small homes radiator heating, but the low price of $99.50, plus installation, is attracting many prospects for larger heating units, because it is bringing home the fact that American Radiator Heating costs a lot less than most people imagined."

More than 8 million people are reading about this amazing, new, low-priced radiator heating this fall in magazines, farm papers and newspapers. A complete selling plan is ready NOW to help alert Dealers sell the home-owners, who have always wanted radiator heating, and now can have it.

Don't overlook the greatest money-making opportunity heating contractors have had in years! Act Now! Write today for complete details of the New Arcola selling campaign!

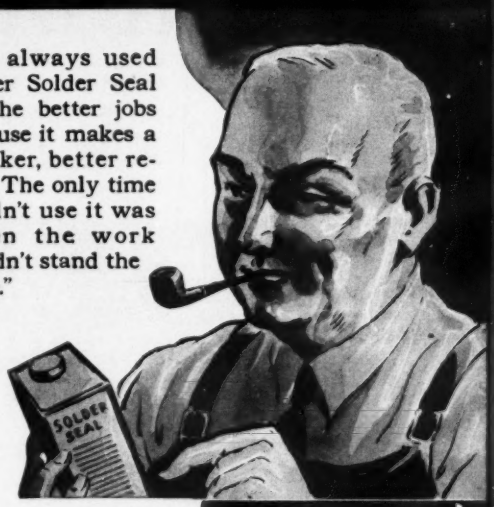
AMERICAN RADIATOR COMPANY

40 WEST 40th STREET, NEW YORK, N. Y.

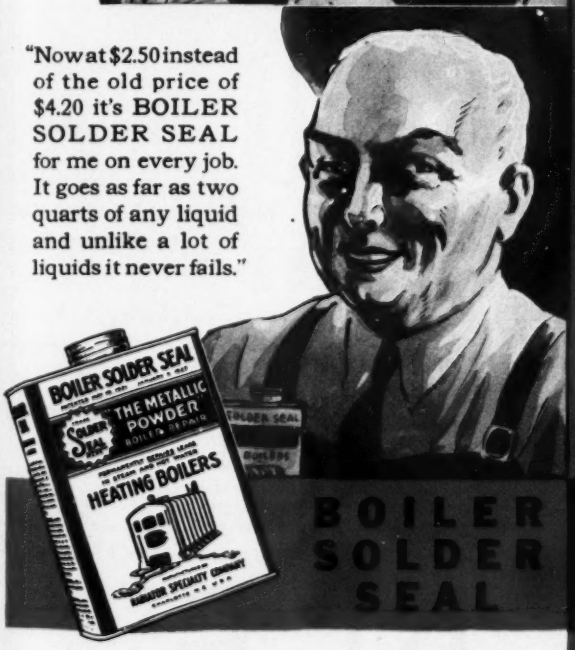
Division of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

"No Other Boiler Repair for Me Now . . . . with B.S.S. at $2.50!"

"I've always used Boiler Solder Seal on the better jobs because it makes a quicker, better repair. The only time I didn't use it was when the work couldn't stand the price."



"Now at $2.50 instead of the old price of $4.20 it's BOILER SOLDER SEAL for me on every job. It goes as far as two quarts of any liquid and unlike a lot of liquids it never fails."

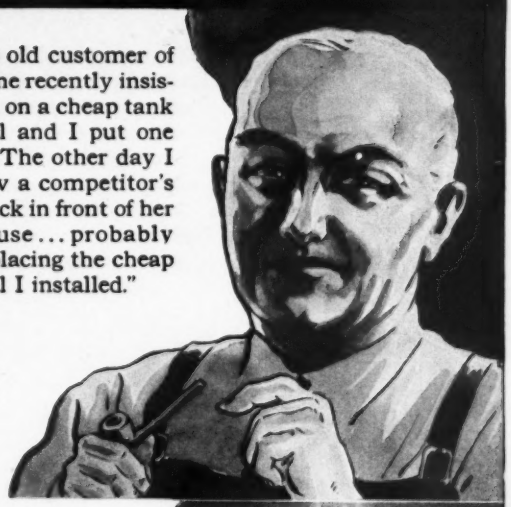


BOILER SOLDER SEAL

The metallic base powder that makes a permanent repair in boilers, pipes and radiators. Easy and quick to use. Doesn't discolor water or retard circulation. Now only $2.50 for the one-pound can. (Formerly $4.20).

"One Lost Customer Taught Me My Lesson"

"An old customer of mine recently insisted on a cheap tank ball and I put one in. The other day I saw a competitor's truck in front of her house . . . probably replacing the cheap ball I installed."



"From now on it's Triple Seal in every tank — when my shop does the job. I've found 'em easy to sell, if you'll explain their advantages and I know they'll last — for four years or more. Service makes them the cheapest ball on the market!"

TRIPLE SEAL TANK BALL

Forms a three-way seal on the valve seat. 94% pure rubber. Won't swell, lose its shape or stick to the seat. GUARANTEED FOUR YEARS. Sold only through jobbers to the trade . . . never to hardware or cut-rate stores.

NRA

RADIATOR SPECIALTY COMPANY
LOS ANGELES, CALIFORNIA CHARLOTTE, N. C. TORONTO 2, ONTARIO

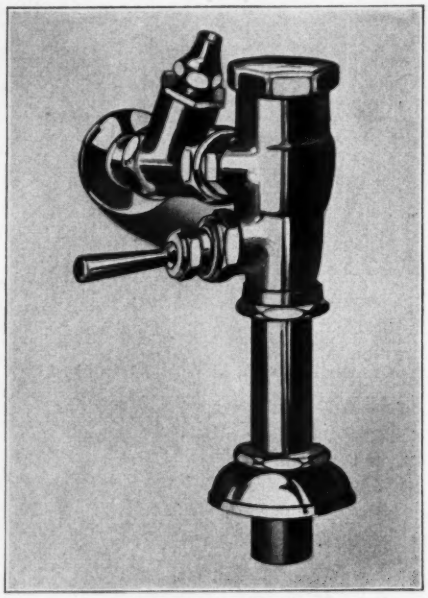
Also manufacturers of W J Boiler & Heating System Cleanser

Your Importance Recognized

Yesterday, today, tomorrow . . . *always* Crane Co. recognizes the plumbing contractor's importance in every sale and installation.

This unvarying Crane policy protects your business and your profits. It brings you co-operation in building a permanent success. It enables you to count on the future with assurance that some suddenly changed selling plan will not undermine your investment.

Build for permanence with Crane materials.



The Crane Delta Water-Controlled Flushing Valve

The quantity of water delivered at each flush can be regulated by a patented eccentric regulating unit on the handle, without shutting off supply or disturbing the valve. It is a non-hold-open-type, closing even though the user continues to hold the handle.

Unique features eliminate stoppage, provide ample refill, clean pipe lines on new installations, guard against trouble and repairs. Write for Circular No. 642-C.

CRANE

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVE., CHICAGO, ILL.
NEW YORK: 23 WEST 44TH STREET
Branches and Sales Offices in One Hundred and Sixty Cities

You'll find the Valves you need *in this new Jenkins Catalog*

Index Covers Over 400 Different Valves

NEW! MORE THAN A CATALOG A 264 PAGE MANUAL

Helps solve your problems about valves and valve layouts

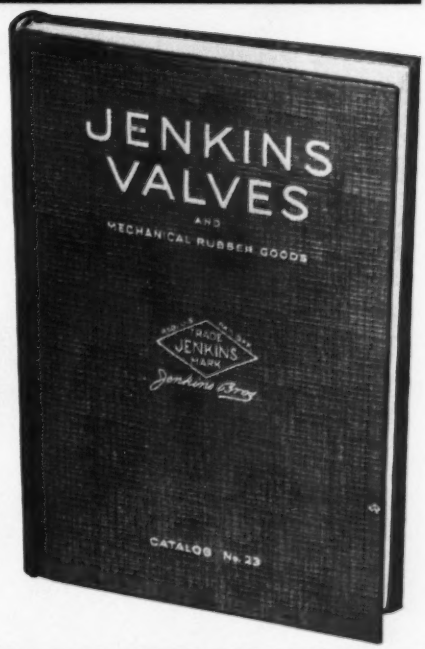
WHEN YOU NEED valves look in the new Jenkins Catalog FIRST. You'll find what you want in its 264 pages. Full information is given on 400 different valves. Large valves and small valves. Valves of bronze, iron and steel. Valves in the common types and patterns. Unusual and special designs for out-of-the-ordinary services. Practically any need in valves for engineering, general industrial or plumbing and heating use is covered by this book. It is a sure time-saver for any man who buys valves.

This new Catalog will save a valve user's money, too. Any valve selected from it can be relied upon to give longer service... to operate with less attention. For every "Diamond" marked valve is made as good as Jenkins can make it. And Jenkins for more than a half century has specialized in the manufacture of fine valves.

So certain are we that it will pay you to pick your valves from the Jenkins Catalog that we back your selection with—

A FAIR OFFER—*If you will put a Jenkins Valve to a service test on the worst place you can find, where you cannot keep other valves tight, and if it is not perfectly tight, or does not hold steam, oils, acids, water or other fluids, longer than any other valve, you may return it and your money will be refunded.*

JENKINS BROS., 80 White Street, New York, N.Y.; 510 Main Street, Bridgeport, Conn.; 524 Atlantic Avenue, Boston, Mass.; 133 No. Seventh St., Philadelphia, Pa.; 646 Washington Blvd., Chicago, Ill.; JENKINS BROS., Limited Montreal, Canada; London, England



Jenkins Valves

BRONZE — IRON — STEEL SINCE 1864

JENKINS VALVES ARE OBTAINABLE THROUGH YOUR SUPPLY HOUSE

Both are Speakman!

K-3395—SPEAKMAN Anystream Self-Cleaning Shower Head (Pat. Jan. 2, 1923 and Nov. 3, 1931). Lever operated. For residences, hotels and general installation.

At the new lower price of $10 you should be able to sell many Anystream Self-Cleaning Heads for replacement. When ordered with a Speakman Shower, the Anystream Head is still lower in price, adding but a few dollars to the cost of the entire shower.

K-7047—SPEAKMAN Adjusta-Spray Shower Head. Pat. Nov. 3, 1931, March 15, 1932 and June 14, 1932.

In places where you cannot sell the Anystream Head, sell the Adjusta-Spray Head, and when ordering a Speakman Shower, the Adjusta-Spray Shower Head will be supplied at no extra cost in place of the regular head.

HERE is the Anystream Self-Cleaning Shower Head which should be used on every high grade shower installation. It permits the bather to have a choice of normal, needle, or flood shower, by simply turning the lever handle, and,

It can never stop up!

The new price is only $10

(Thousands formerly sold at $15)

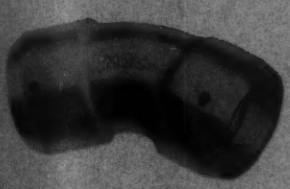
BELOW is the little brother of the Anystream Head, which is known as the Adjusta-Spray. It does not allow the same variation as the Anystream Head, but it does permit the bather to have either a coarse or fine spray and it is self-cleaning. It is 2¼" across the face, while the Anystream Self-Cleaning Head is 4⅛" across.

The Adjusta-Spray Head was made for a lower price market than the Anystream Head.

Literature on both these heads is available, imprinted with your name and address. Either head will be furnished when specified on any type of Speakman Shower.

SPEAKMAN COMPANY
Wilmington, Delaware

SPEAKMAN
Showers & Fixtures



STREAMLINE

TRADE MARK REG. U. S. PAT. OFF.

DRAINAGE FITTINGS!

A complete line of STREAMLINE drainage fittings incorporating all the advantages of the well known STREAMLINE fittings are now available and ready for your use.

STREAMLINE drainage fittings make possible a pipe line of hard drawn copper with fittings having a smooth interior of the same bore as the pipe, permitting an unrestricted and extraordinarily smooth flow area. There is no roughness or protruding pipe ends to cause obstruction.

STREAMLINE Drainage Fittings May Be Connected in a Minimum of Working Space

Since no room is required for wrench hold or wrench swing such as is required to screw threaded fittings into place, the STREAMLINE fitting, which is very little larger than the pipe line, may be easily connected in any space large enough to accommodate the fitting itself. A line which is to be carried in hangers is very easily run because it can be properly pitched before soldering.

Since there are no hubs on STREAMLINE drainage fittings the piping can be concealed between studs and joists and still leave ample room for flooring, lath and plaster. When it becomes necessary to cut the joists, they are not weakened to such an extent with STREAMLINE fittings as with screwed fittings, which are heavily beaded and considerably larger in diameter. An entire drainage system for a bathroom may be assembled on a work bench, roughed in to place and connected to the fixtures. A STREAMLINE fitting eliminates unsightly and expensive furring, and saves valuable space.

High Salvage Value

STREAMLINE materials have a high salvage value. No matter how long they have been installed they may be disconnected merely by heating the joints with the blow torch; the entire system may be dismantled and pipe and fittings are immediately available for similar use. STREAMLINE copper pipe and drainage fittings are practical for all replacement work and can be installed with a minimum of damage to floors or walls.

WITH ALL THESE STRUCTURAL ADVANTAGES THE GREATEST VALUE OF A STREAMLINE INSTALLATION IS THAT ITS JOINTS ARE PERFECTLY BONDED AND ABSOLUTELY TIGHT, THAT IT CANNOT CLOG OR RUST AND WILL OUTLAST THE BUILDING IN WHICH IT IS INSTALLED.

STREAMLINE drainage fittings will meet all plumbing code requirements.

Send for our new catalog F, illustrating and describing STREAMLINE products and a complete range of STREAMLINE drainage fittings.

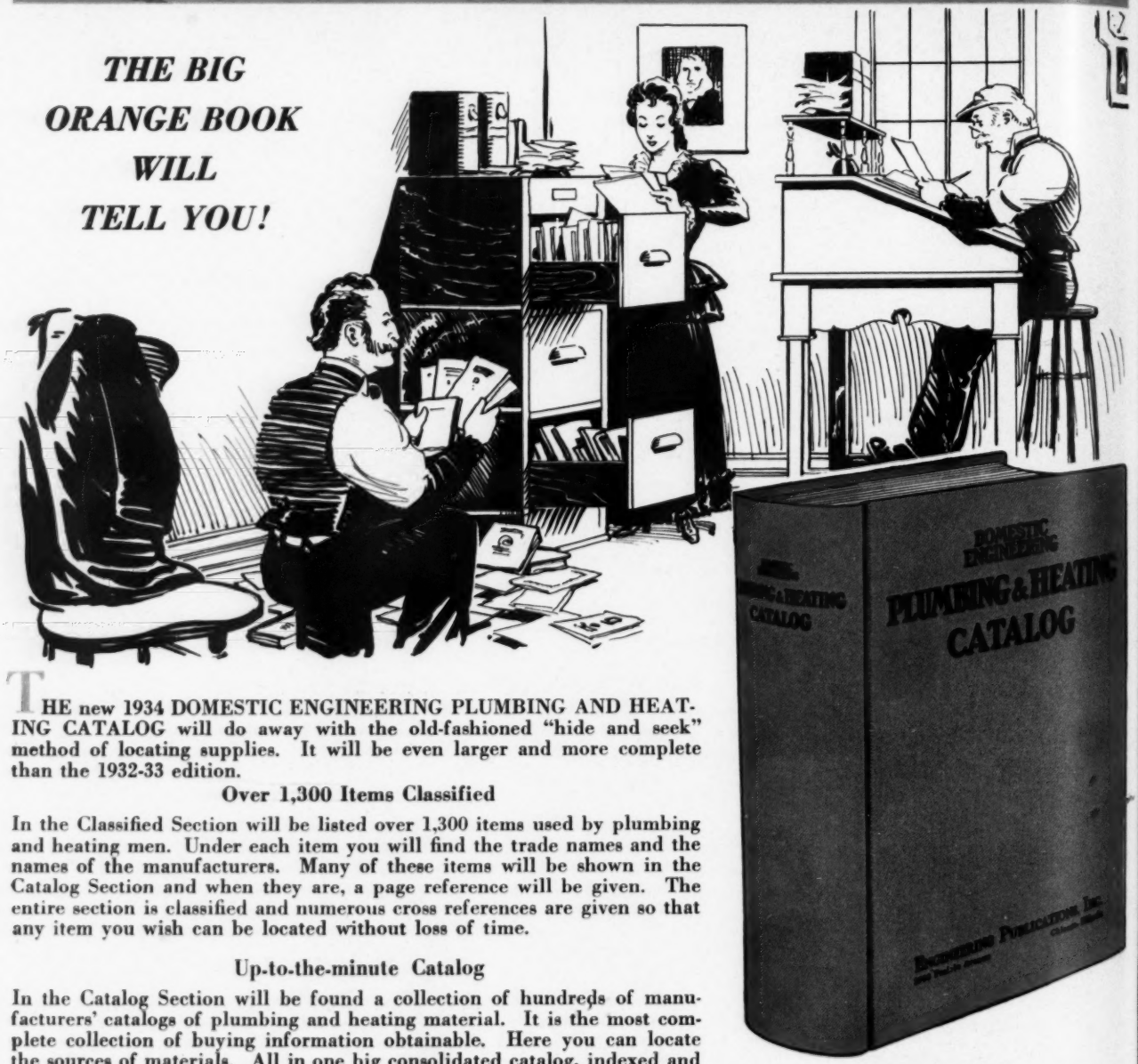
STREAMLINE
PIPE AND FITTINGS
PORT HURON, CO. MICHIGAN
DIVISION OF MUELLER BRASS CO.

NRA MEMBER U.S.A. WE DO OUR PART

Patent 1,776,852 Patent 1,778,562
Patent 1,886,980
Other Patents Pending

WHY PLAY "HIDE AND SEEK"?

THE BIG ORANGE BOOK WILL TELL YOU!



THE new 1934 DOMESTIC ENGINEERING PLUMBING AND HEATING CATALOG will do away with the old-fashioned "hide and seek" method of locating supplies. It will be even larger and more complete than the 1932-33 edition.

Over 1,300 Items Classified

In the Classified Section will be listed over 1,300 items used by plumbing and heating men. Under each item you will find the trade names and the names of the manufacturers. Many of these items will be shown in the Catalog Section and when they are, a page reference will be given. The entire section is classified and numerous cross references are given so that any item you wish can be located without loss of time.

Up-to-the-minute Catalog

In the Catalog Section will be found a collection of hundreds of manufacturers' catalogs of plumbing and heating material. It is the most complete collection of buying information obtainable. Here you can locate the sources of materials. All in one big consolidated catalog, indexed and cross-indexed for ready reference, you will find illustrated and described nearly any item you will want.

More than 4,000 Manufacturers Listed

A complete list of all manufacturers (over 4,000) who make items used in the plumbing and heating industry is given with street addresses.

101 Plumbing and Heating Tables

The Engineering Section contains over 100 tables, rules, charts and diagrams commonly used by plumbing and heating men.

Special
PRE-PUBLICATION OFFER

When the "Big Orange Book" comes off the presses this fall, it will be sold for $7.50 a copy. But if you will send in your order now, we offer you the special pre-publication price of only $5.00 —payable after you have received your copy. If you do any great amount of buying, you need this book and as this offer will not be open long, we suggest that you accept it now. Fill in the coupon below and mail it today.

DOMESTIC ENGINEERING PLUMBING AND HEATING CATALOG

11th Annual Edition—for 1934

DOMESTIC ENGINEERING PLUMBING AND HEATING CATALOG,
1900 Prairie Avenue, Chicago, Illinois.

We hereby authorize you to enter our order for one copy of the 1934 edition of Domestic Engineering Plumbing and Heating Catalog for which we agree to pay you five dollars upon receipt of the Catalog.

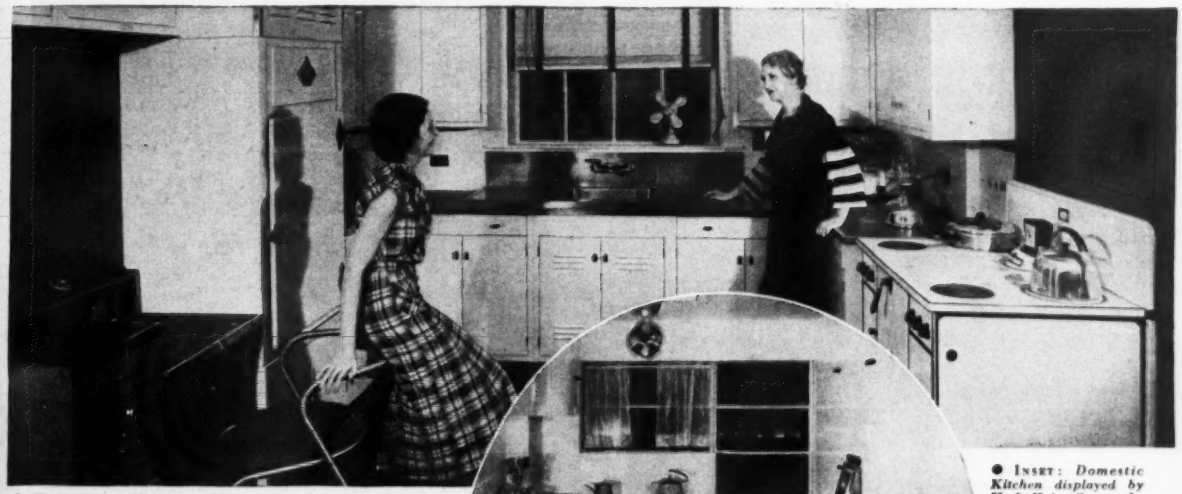
Firm ..... Mark book for Mr. .....

Street Address ..... City and State .....

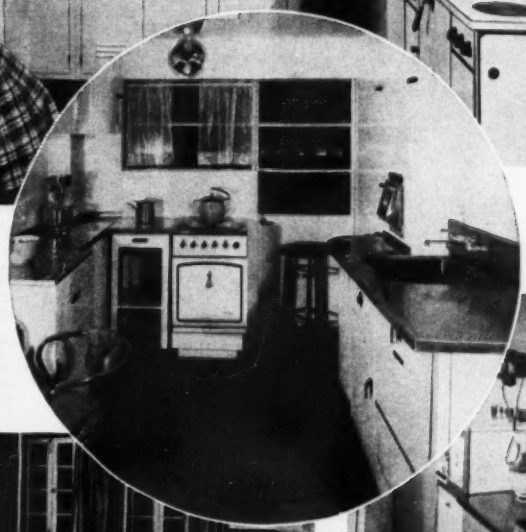
Signed by .....

Kitchens at the Century of Progress

SHOW HOME OWNERS THE KIND OF EQUIPMENT THEY EXPECT TO GET FROM YOU

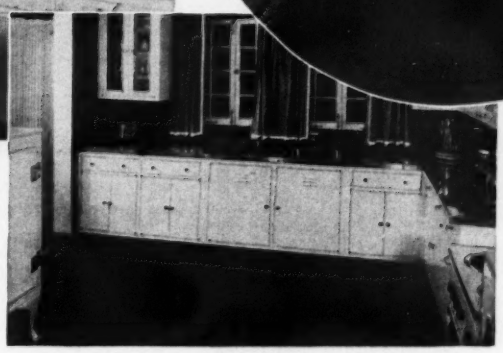


● *Westinghouse All-Electric Model Kitchen at the Century of Progress, Chicago. Equipment includes INCO Model C-2060 Monel Metal Cabinet Sink.*

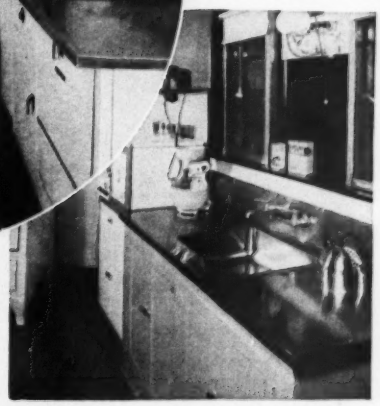


● INSET: *Domestic Kitchen displayed by H. J. Heinz Co., at the Century of Progress, equipped with an INCO Model C-2048 Monel Metal Cabinet Sink.*

● ABOVE: *Kitchen in the Rostone House, at the Century of Progress. Equipment includes G-E 62" Monel Metal Dishwasher Sink and Monel Metal Cabinet Tops, 25" x 30".*



● *Kitchen in the W. & J. Sloane House at the Century of Progress. Equipment includes G-E Monel Metal Dishwasher Sink and Monel Metal Cabinet Tops.*



● *Kitchen in the Brick House at the Century of Progress Fair, sponsored by the American Face Brick Assn. Equipment includes INCO Model C-2060 Monel Metal Cabinet Sink.*

IF you were at the fair, you know how people stood in line outside every one of the Model Homes, sometimes for *hours*, waiting for a chance to get inside for a look around. No other single feature of the fair attracted so many visitors.

The *one* room that held sight-seers longest in each home was the kitchen. And it's worth noting that *most* of the kitchens were equipped with Monel Metal.

Why not? Weren't these the *houses of the future?* Weren't visitors there to get ideas...for new homes, for remodeling, for modernizing?

Customers of yours who saw these homes look to *you* for new kitchen equipment... for Monel Metal sinks, cabinet tops, hot water tanks (range boilers), and kitchen tables.

If you display these items, show them on your floor and in your windows, and talk them up to your customers, when they buy their Monel Metal equipment, they'll buy it from you.

Monel Metal's steel-like strength resists dents and scratches. Monel Metal is absolutely rust-proof. Being solid metal right through, it has no surface that can chip, crack or wear off. Monel Metal equipment still looks gleaming new after years of hard use.

It's good business to be recognized as Monel Metal headquarters in your community. Are you prepared to handle the sales that are going to be made? If you *want* to be, write for our new catalog which includes our double compartment cabinet sinks.

MONEL METAL

Monel Metal is a registered trade-mark applied to an alloy containing approximately two-thirds Nickel and one-third copper. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

THE INTERNATIONAL NICKEL COMPANY, INC.
67 WALL STREET, NEW YORK, N. Y.

DOLLARS AND SENSE

BELIEVE IT OR NOT, the fellow who soldered this "copper tube man" together is named Tinker—Ted Tinker. He's a skilled metal worker like yourself, who takes a delight in "tinkering" with Chase Tube and Sweat Fittings just to show what can be done. Outside of a few scraps of Chase sheet brass for trimmings, everything used is a stock Chase product. Figure stands 7 inches high.

When you see this mark on copper or brass, you're sure of your money's worth.

CHASE COPPER WATER TUBE AND SWEAT FITTINGS

YOU CAN take work away from the "job-at-any-price" boys. Instead of a bitterly competitive bid on ordinary rustable pipe, you can offer a rigid, *rustless* Chase copper water system for just a few dollars more.

Few owners are likely to turn down such an attractive proposition. You make a respectable profit and, using Chase Rigid Copper Water Tube and Sweat Fittings, turn out a job that does you credit. It's clean, straight-hanging, and has a professional look that's a regular advertisement for you. Just to show the possibilities of these materials in the hands of a skilled plumber, the figure used in the above photo was made entirely of Chase products.

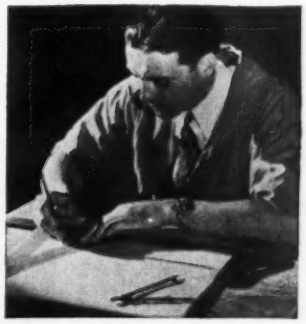
CHASE BRASS & COPPER CO., INC.
WATERBURY, CONN.

ENGINEERS SAY:

"Cast-iron for Dependability"

ARCHITECTS SAY:

"Concealed radiation for Smartness"

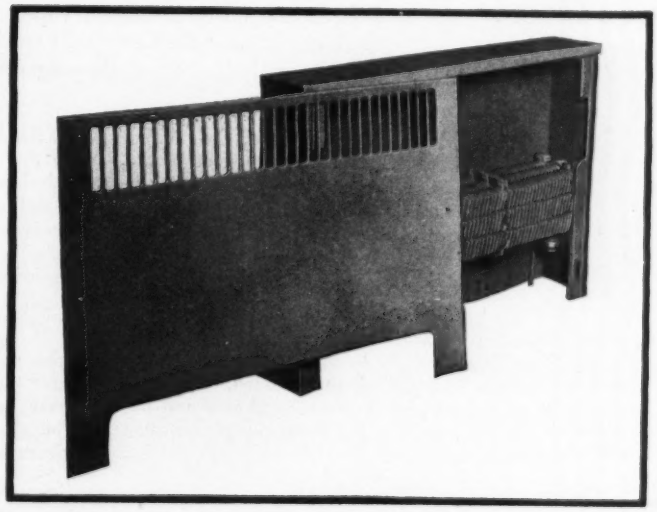


Satisfy both with the new Cast-Iron

ARCO CONVECTOR

Now you can meet the popular demand for concealed radiation—without sacrificing heating efficiency—with the New Cast-Iron Arco Convector. Until this practical application of the principle of heating by convection was developed, room comfort in winter could only be assured by using the exposed, column radiator. Now you can offer *all* the efficiency and dependability of cast-iron radiation plus the advantages of concealed radiation in the Cast-Iron Arco Convector.

All the latest developments in heating by convection are incorporated in this product. And the Arco Convector with the Arco Enclosure provides an attractive, dependable concealed radiator, backed by the undivided responsibility of the world's largest manufacturer of heating equipment. Write today for catalogue.



AMERICAN RADIATOR COMPANY

40 West 40th Street, New York, N. Y.

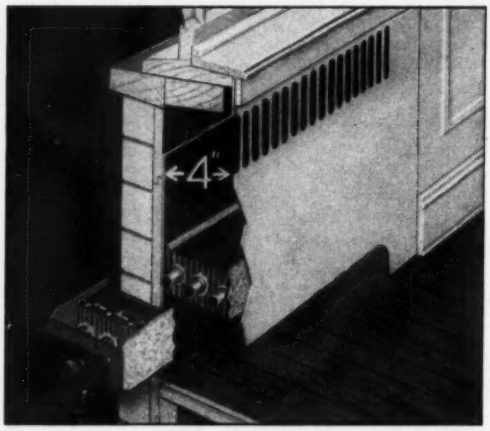
Division of

AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

Erskine Fin Type Radiators

A radiator that works efficiently on all types of heating jobs

A cut away view of a recessed Erskine Copper Radiator placed under a window. Compact and out of the way.



Erskine Radiators are rugged. ¾-inch tubes of .020 copper. Fins .020 copper protected by strong side plates.

Whether it's water, steam, vapor or vacuum, the Erskine Copper Radiator will work efficiently and economically for the following reasons:

LARGER TUBE—The size of the tube in the Erskine Radiator is ¾" instead of the usual ½". When used with hot water it permits ample circulation. If used with steam it allows enough room for condensation return.

LARGER FINS—The radiator fins are 3½" and wider for some uses. This provides a larger area of radiation which adds materially to the heat volume. Each fin is corrugated and flanged. The corrugations give it greater stiffness and the flange regulates the even spacing between each fin.

PERMANENT BOND—The tube is joined to the fin by a patented operation that eliminates the use of solder or other material of a low melting point and low thermal conductivity. The shape of the tube is changed from round to octagonal assuring an absolutely snug contact.

The next time you install a copper radiator try an "Erskine." You don't have to carry a stock. They are made in many lengths and widths and we can ship promptly.

Chase Brass & Copper Co.

INCORPORATED

ERSKINE RADIATOR DIVISION

1 E. 42nd St.
New York

CHASE
ERSKINE
RADIATOR

Waterbury,
Connecticut

Brass Pipe and/or Copper Tubes

A common sense standard for the selection of water pipe

NO one metal is ideal for every piping installation. *That is obvious.* For certain jobs, some metals lack sufficient durability to make their use truly economical. For other jobs, the cost of super-quality may not be justified by the corrosion or mechanical factors involved. These are facts . . . and you can't get away from them.

Years ago, The American Brass Company discontinued the manufacture and sale of just "brass pipe". We analyzed water conditions and made a 10-year corrosion study on a wide range of alloys. As a result, we standardized on two scientific alloys of brass . . . Anaconda "67" for normally corrosive waters and Anaconda "85" Red-Brass for highly corrosive waters.

Installations of record prove that brass pipe of the correct alloy, connected with standard pipe fittings, is second to no other commercial pipe material in durability and satisfactory performance.

Anaconda Deoxidized Copper Water Tubes

Copper Tubes available in long lengths and coils, are readily bent for ordinary turns and offsets, offering obvious installation advantages.

For years, The American Brass Company has made seamless Copper Tubes for countless uses. Within comparatively recent years, these tubes, connected with so-called compression or flared fittings, have been used with entire success for water service and distribution lines.

Intensive study of performance records now leads to the endorsement of cast solder fittings, with these tubes in sizes up to and including 4", where conditions of pressure and temperature are normal. The American Brass Company does not manufacture fittings but there are now good standard lines of high quality solder fittings available on the market which can advantageously be assembled with Anaconda Deoxidized Copper Water Tubes. Cast solder fittings, because they hold heat during the soldering operation, and also because they are not likely to become distorted from handling, make possible sound, leak-proof solder joints.

All Anaconda Deoxidized Copper Water Tubes stocked by Anaconda distributors are drawn to the accurate sizes required for use with cast solder fittings and comply fully with the tolerances issued by the Federal Specifications Board. While tubes of so-called underground sizes (A.S.T.M. Class A) are recommended for general plumbing work, "interior plumbing" sizes (A.S.T.M. Class B) are considered satisfactory for distribution lines in buildings. The wall thicknesses required by A.S.T.M. Specifications for Classes A and B tubes are shown in the accompanying table.

Anaconda Standard Brass Pipe of the correct alloy for the local water condition . . . assembled with threaded screw fittings . . . is recommended for all sizes over 2" in diameter. Copper tube branch lines may be connected directly to the standard size pipe with special fittings now available.

ANACONDA COPPER WATER TUBES

Nominal Size, Inches	Wall Thickness		Weight, lbs. per ft.*	
	A.S.T.M. Class A	A.S.T.M. Class B	A.S.T.M. Class A	A.S.T.M. Class B
⅛	.0320	.0250	0.085	0.068
¼	.0320	.0300	0.134	0.126
⅜	.0490	.0350	0.269	0.198
½	.0490	.0400	0.344	0.284
¾	.0650	.0450	0.641	0.454
1	.0650	.0500	0.839	0.653
1-¼	.0650	.0550	1.040	0.882
1-½	.0720	.0600	1.360	1.140
2	.0830	.0700	2.060	1.750
2-½	.0950	.0800	2.920	2.480
3	.1090	.0900	4.000	3.330
3-½	.1200	.1000	5.120	4.290
4	.1340	.1100	6.510	5.380

** Variations in these weights must be expected in practice.*

ANACONDA
from mine to consumer

THE AMERICAN BRASS COMPANY

General Offices: Waterbury, Connecticut
Offices and Agencies in Principal Cities

CHICAGO FAUCET NEWS

Issued Monthly by The Chicago Faucet Co., 2700-22 N. Crawford Ave., Chicago, Ill., Vol. 1, No. 12

SNIPERS FEEL CLAWS OF BLUE EAGLE

BROWNIE SHOWER HEAD GAINING GROUND

Just a couple of little discs with fifty sure-fire ports and a rifle shot of water spurting from each port! That's the Brownie shower head. It's little but, Oh My! It hits on all cylinders—and that's something you can't say for the bulky face-plate type of shower head.

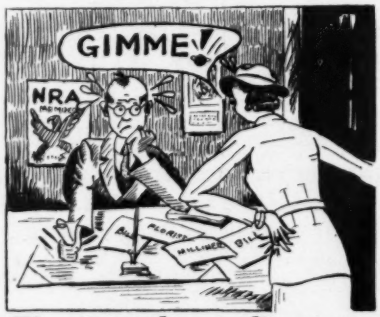
We hear its praise sung from all points of the compass. Today a Y. M. C. A. writes . . . . "We are delighted with these heads and hope to replace all our shower heads with your Brownies." It is one of many such letters. Our face grows redder every day. Most of these Brownies were sold on approval—and *got* it.

The **SURE-FIRE BROWNIE**

BRIGHTER TOMORROW SEEN AT WORLD'S FAIR

There's no better tonic for the depression blues than a trip to A Century of Progress. Here in breath-taking exhibits is unfolded the drama of modern progress. And here too, in the throngs of modern people, is seen the spirit of a brighter tomorrow.

We see these people at our own exhibit. They are people alive with the spirit of progress. Their wings have not been clipped by the interim upset of the last few years. And their interest doesn't begin and end with Sally Rand's fans either! The number that have shown *real* interest in our product already far exceeds our wildest expectations. We believe that in the years to come a great many plumbers will find Chicago Faucets highly acceptable to people who first became acquainted with them at the World's Fair.



The stern demanding type

BILL DILL has just about the nicest wife around the town—the sweet, self-sacrificing kind—a joy to have around. When plumbing went to pot, and Bill went skidding down the hill, she blamed it on Depression's toll and only pitied Bill.

Bill's business rival, Ira Street, is married to a hussy. She falls for hand-carved lingerie and everything that's fussy. When Ira kicks about the bills and says that things are lousy, she says, "You'll find the wherewithal or find another spousy!"

Now, strange enough, Bill's business hope is almost lost from sight—while Mrs. Dill makes over clothes and strokes his brow at night. But Street keeps humping, 'morn till night, and packs a dirty "close" that brings the faucet order in, and buys the frocks and hose.

But Dill is soon to see a change that may prove for the better. A gal is entering his life to make him a "go-getter." The stern, demanding type (that made a he-man out of Ira) will likewise keep Jack humping when he ***hits it off with NIRA.***

No. 444

CALLS IT HIS STANDBY

One plumber called the No. 444 his stand-by, and probably a few hundred more have the same idea of it. It fits the customer's sink, pocketbook, and taste. Supply arms are adjustable to 8, 10 or 12-inch centers: furnished for ½-inch or ¾-inch pipe. This is the type of faucet that Bill Dill should have become acquainted with in the second-rate pome (or whatever it is) that appears above.

If carried out in its true spirit, the N. R. A. is destined to strip the false whiskers from many products and put them in their proper place in the scale of values.

While compliance with the code does not rob the individual product of the individuality that enables it to compete, it ***does*** place the matter of cost and selling price on a fair, honest, and equitable basis.

Oh, the crimes that have been committed in the name of cost in the last three years! You have probably been the victim of them more than once. You have figured a job as low as you felt you could while maintaining your self-respect. And then you found that some competitor had knocked the spots out of you. You knew that one of three things was true. Either that the competitor was grinding down his wages to a starvation level, or that he was putting in shoddy equipment, or that he was giving away dollars!

Since the giving away of dollars was unlikely, you knew he was grinding down his men or cutting down his quality—probably both.

And in the manufacturing field it has been the same. The manufacturer of quality equipment has found it necessary to pay fair wages—the first assurance of quality. He has also found it necessary to use good material—the second assurance of quality. Some of these manufacturers have clung to their quality ideals until they found themselves in the position of an exhausted man clinging to the spar of a sinking ship in shark-infested waters.

But now the N. R. A. says "you shall deal fairly"—and what is the result? There is every reason to believe that the spread between "cheap" and "quality" merchandise will be far less than before. Ruinous competition will be wiped out. Sniping will be punished. The things we could not do for ourselves will be done for us.

Will it work out? It will if all reputable businesses cooperate to ***work it out.***

WATERLESS WATER SEALS UNDER FIRE

Interest in Goss Primers for maintaining fresh water in floor drain traps has been greatly stimulated as a result of the first rumblings of war on the uncertain water seal in floor drains, brought to light by a resolution of the A. S. of S. E. and reported in the last issue of Chicago Faucet News.

Once more let us remind you that the Goss Primer measures up to the letter of the specifications contained in the A. S. of S. E. resolution. This means that it will be an ever-growing source of business to you as the battle front widens.

Secret Service

When delivered, this ballcock is adjusted to average conditions. Where very high pressures occur, loosen screw A and turn Hexagon bushing B clockwise, to make more quiet. For low pressures, loosen screw and turn counterclockwise, for faster fill.

THIS improved "S" Line China Seat Ballcock does its work strictly on the q-t. No matter how high or how low the water-pressure, a turn of a screw adjusts it to give quiet service. This vast improvement over the wide-open type is due to the new *adjusting sleeve* feature, with its broad-headed *locking screw.*

This sleeve regulates the noise of the ballcock by forming a separate hush chamber immediately around the seat, the discharge from which is regulated by screwing it up or down. As the water is released from the small chamber, it enters an especially generous body where the pressure and velocity are dissipated, and the water flows quietly into the tank.

Like every other item in the M-VB line of tank fittings, this improved ballcock is made of materials that will last a lifetime. Like the others, too, it represents the finest workmanship and pre-tested efficiency. Its silence is typical of M-VB leadership. Ask your jobber for details, or send for our general catalog.

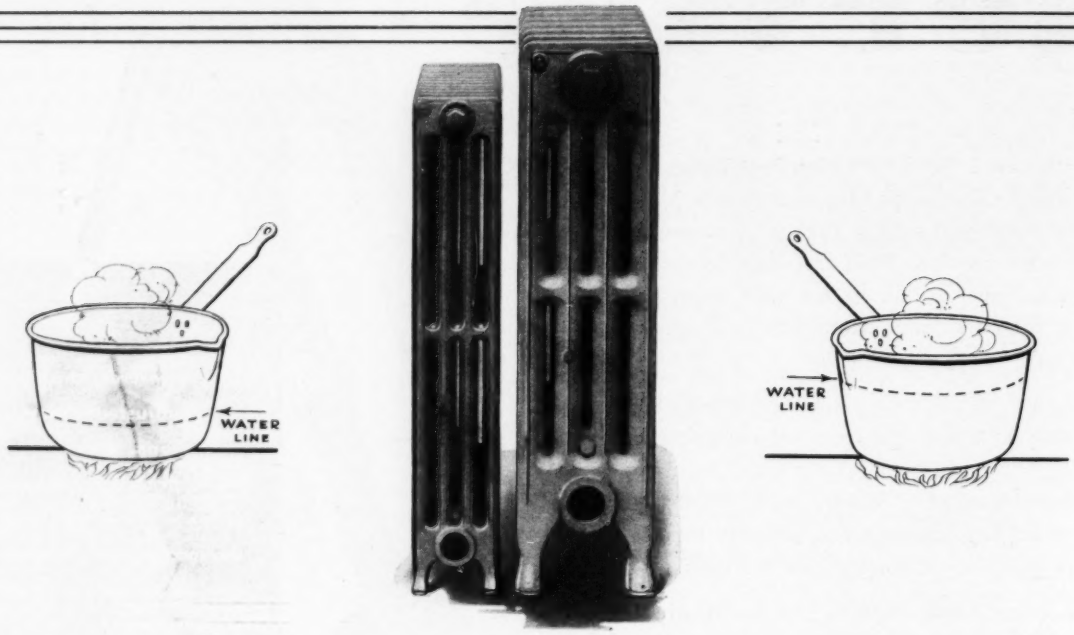
The "S" line of tank fittings, made by M-VB, is a good serviceable line at unusually low prices. Save time and trouble by ordering both quality and competitive fittings from the same source.

MORENCY-VAN BUREN DIVISION
Scovill Manufacturing Company
STURGIS MICHIGAN

A COMPLETE LINE OF CLOSET TANK FITTINGS

Which Pan Costs Less to Heat?

The Answer Means Money *to You*



IN the left pan are 8½ oz. of water. In the right are 15 oz. of water. Which costs less to heat?

All right. In the average-size New Burnham Radiator there are 8½ oz. of water per sq. ft. of heating surface. In the conventional radiator there are 15 oz. per sq. ft. Naturally then, it costs less to heat a house with Burnham Radiators,—less hot water has to be heated and circulated through the radiators. If steam is used, the saving is similar, because there is less air to drive out.

Take your bids out of competition by showing your prospects the two diagrams above, and offering them Burnham Radiators, the ones that give the same heating effect in ⅓ less space, and save real money. They can be used exposed or concealed or hung on wall.

Remember, "for the want of a nail a kingdom was lost." By the lack of complete data on the wonderful New Burnham Radiators, your bid may lose out. Catalog on request. What's your problem?

Burnham Boiler Corporation

IRVINGTON, NEW YORK

Representatives in all Principal Cities of the United States and Canada

Burnham Boiler Corp.,
Irvington, New York

Send me full information and prices on the New Burnham Radiators, advertised in Domestic Engineering.

Name .....

Address .....

20%
LOWER MAINTENANCE COSTS and MILWAUKEE HEATING SPECIALTIES DO THEIR PART

This Tullgren designed apartment is the development of an entirely new idea, now patented, in multiple family residences. Two story suites were built with living quarters on one floor and sleeping quarters upstairs, with public corridors eliminated on alternate floors, giving tenants more room at no extra cost. 92% complete occupancy in comparison with average of 60% in other Milwaukee apartments proves that tenants appreciate these features.

HERBERT W. TULLGREN
1234 N. PROSPECT AVE. • MILWAUKEE, WIS.
ARCHITECT

11 Sept. 1933

Milwaukee Valve Company,
Milwaukee, Wisconsin

Gentlemen:

In our Viking Apartments, completed in 1931, and 92% occupied ever since, maintenance costs average 20% lower than in other apartments of comparable size and quality. Every feature of its design and construction was selected in an attempt to secure greater value for less cost. You will be pleased to know that Milwaukee Heating Specialties were used throughout.

Yours very truly,

HERBERT W. TULLGREN, Architect

NRA WE DO OUR PART

The Milwaukee line of Heating Specialties is stocked by the country's leading plumbing and heating jobbers. They also handle the complete line of Milwaukee "Approved" Bronze Valves. And the added convenience of dealing with your local jobber costs you no more. Representatives of Milwaukee Valve Company are ready, at all times, to cooperate with jobbers in rendering whatever engineering service you may require. Mail coupon for new condensed catalog and price sheet.

MILWAUKEE VALVE COMPANY

Manufacturers of
Milwaukee Heating Specialties; Milwaukee "Approved" Bronze Valves; Milwaukee Valves and Fittings for the Oil Industry
MILWAUKEE :: WISCONSIN
District Offices in Twenty-three Principal Cities

Milwaukee Valve Co.
Milwaukee, Wis.

Please send me catalog and Price Sheet No. 112.

Name

Company

Business

Street and number

City State

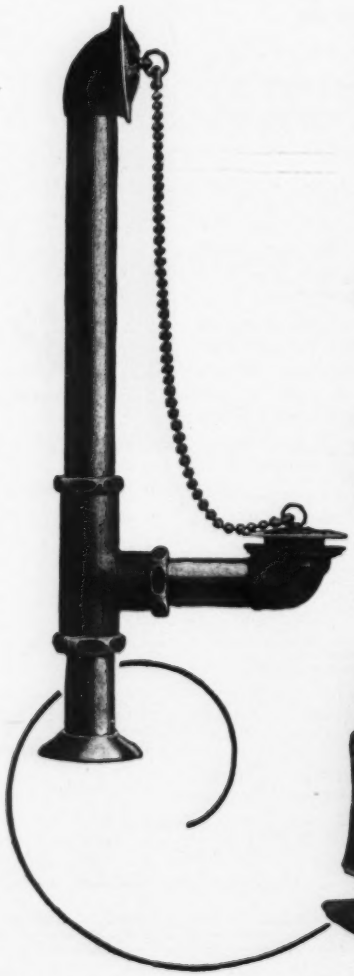
DE1033

WISECO PRODUCTS

NRA
WE DO OUR PART

This HANDY BATH COMBINATION consisting of BATH COCK, WASTE and OVERFLOW and SUPPLIES complete in one package is a great convenience and a big time saver for both the jobber and the plumber.

ASK FOR IT



J. B. WISE, INC.
WATERTOWN, N. Y.

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Fort Worth

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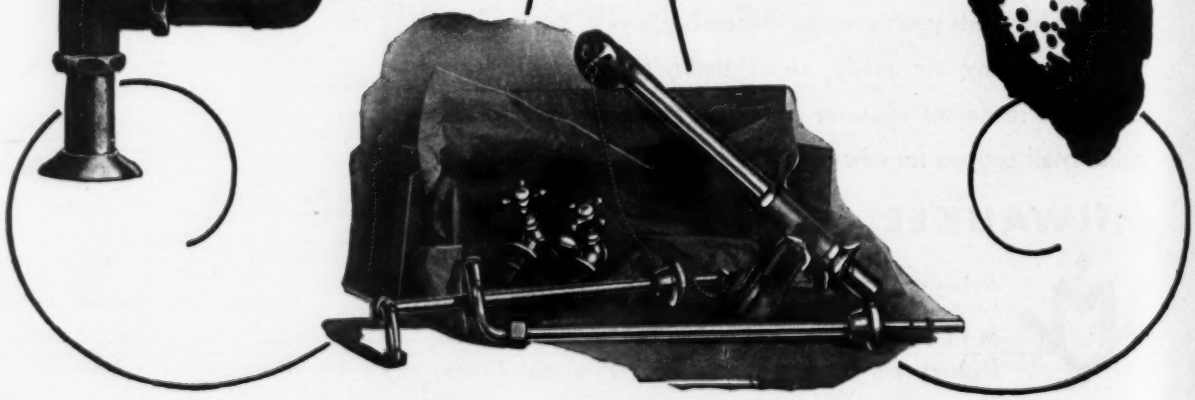
Detroit



THE STANDARD OF QUALITY SINCE 1877

Mother approves! Father orders!

THE CHILDREN'S BATHROOM

This bathroom was first exhibited at the Kohler building at A Century of Progress, and there aroused much favorable comment. Parents of younger and older children alike were impressed with the advantages of separate bathrooms for the children.

The practical merit of this installation is that fixtures are all adult-sized. Benches are removed as the child grows taller. And note the fourth piece —dental lavatory—means extra profits in the face of today's demands for greater home sanitation.

You will find in this new and interesting idea a real opportunity to interest prospective customers. Many homes are adding new bathrooms to keep up with growing families. Get your share of this replacement business!

Kohler makes a wide variety of tubs, lavatories and toilets suited for such a purpose. All are Kohler quality throughout—from smooth clear surfaces to hidden working parts. The Kohler trade-mark on each piece is your guarantee that every fixture and fitting is trustworthy.

For further information about this or any other Kohler product, write to Kohler Co., Kohler, Wis. Founded 1873. Shipping Point, Sheboygan, Wis.

Stockton lavatory—Dental lavatory—Viceroy tub. (Notice towel bars and grip rail).

NRA MEMBER U.S. WE DO OUR PART

KOHLER of KOHLER

PLUMBING FIXTURES AND FITTINGS

Thanks:
The information from Domestic Engineering's columns was very useful. I thank you very much for your co-operation.
—C. B. P.,
Pennsylvania.

BETWEEN OURSELVES

Codes Are Important

THIS CODE question has lost a little of the freshness which made it so interesting to all of us when codes, blue eagles, blanket agreements, etc., were brand new. But from all present indications, the code program is just as serious and just as full of meaning to all of us as it ever was. We may have lost some of our interest but we will have to keep interested.

A Delayed Job

THE FIRST MOVE, after the original announcement that every industry would have to provide itself with a code of fair competition, was to get all companies under the President's blanket agreement. That proved easy. Since then, a few big industries and some smaller ones, have put their own codes through but thousands of codes are still being debated. The only one affecting our readers which has been signed by President Roosevelt is that of the cast iron soil pipe industry. Modifications in it are being urged. So the second phase of the NRA movement is still being worked out by our industry.

Enforcing Codes

NOW THE real job is still ahead, according to General Hugh Johnson. This third and final effort to help business is to set up the enforcement system which will make these thousands of codes workable and which, it is hoped, will do the job of securing fair competition, of insuring better wages and better purchasing ability and of eliminating the minority fringe or chiselers whose antics have hurt all business and whom President Roosevelt promises must be driven out.

Must Work on Codes

SO THE first sense of disappointment because these codes have not accomplished a quick miracle, should not blind any reader to the fact that the whole weight of Washington influence is still behind them. The program may lapse, but on today's basis no one can safely assume that. Every attention must be given to securing fair codes for our industry and then adequate enforcement agencies to carry through the reforms which the majority find necessary for the larger benefit of all.

A Real Sales Help

WE ARE GLAD to offer you in this issue a group of related articles which are timely and helpful. We all know prices have gone up. We all know that the shrewd customer would prove his shrewdness if he bought that delayed plumbing and heating job now. And we all know, how each of us is inclined to shy away from bargains on a declining market and then to pay higher prices on a rising market.

What Re-Estimates Show

WE WENT after proofs for you, proofs which you could in turn show to your customers. Some representative plumbing jobs were selected and also some typical heating ones. They were jobs done by our readers a few months ago. These readers co-operated by estimating what the fixtures involved would cost the customers if the jobs were ordered at today's prices. A surprisingly large advance is shown.

Today's Bargains

THE ARTICLE gives you the ammunition to show your prospects that further delay means a higher cost. They can not safely keep on waiting for a bigger bargain. Today's prices, even though higher, are bargains and the psychology which makes us buy on a rising market will favor you.

Three-in-One

THEN FOLLOWING is an article bearing directly on the peculiar problems met in estimating for remodeling work. And there's some late information on the government's huge $3,300,000,000 public works program which offers an immediate opportunity for the building industry. Taken together, these articles show a business opening, provide the means to estimate the work and to sell it.

More to Offer You

YOU'LL FIND a bigger section on Automatic Heat and Air Conditioning; some live news on the Beer Equipment field; some more news on the interesting developments in our own field. As the industry's business paper, we have more to offer you today than ever before.

Your Editor

Sell your customers KEENEY *positive* performance —it will mean money to you

KEENEY Upright Air Valves are positive in performance, combining the finest qualities of workmanship and design. Into every KEENEY Upright Air Valve is built those qualities which achieve long time performance and efficiency of operation.

Both the No. 100 Syphon Air Valve and the No. 200 Vacuum Valve are equipped with the KEENEY Lock Nut, which keeps them in an upright position constantly and assures positive performance at all times.

Every year hundreds of thousands of KEENEY Upright Air Valves go into active service, and out of this record of performance never more than a dozen or so are returned for failure of operation. Check this with KEENEY Air Valve distributors.

This kind of service builds up your name and reputation. Heating men from all over the country tell us how good KEENEY Upright Air Valves are and what they do for their customers.

All KEENEY Syphon and Vacuum Valves individually tested before leaving the factory.

Furnished packed in attractive counter and window display cartons.

THE KEENEY MFG. CO.

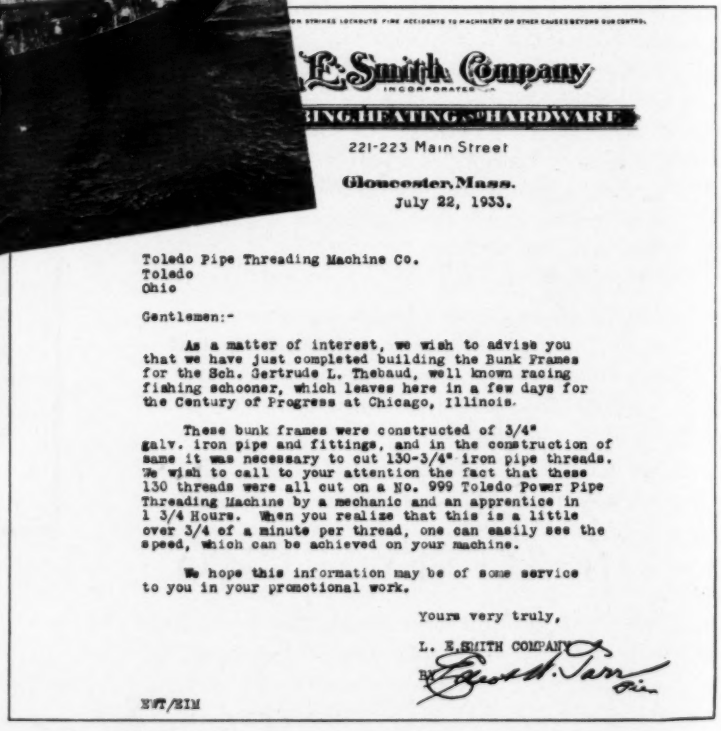
NEWINGTON CONN.

Think of KEENEY *first*

Write for full information on our line of Automatic and Vacuum Air Valves. Also Wood Wheel and Key Air Valves and Floor and Ceiling Plates.

STANDARDIZE ON THE KEENEY LINE

BOTH CHAMPIONS



L. E. Smith Company
INCORPORATED
PLUMBING HEATING and HARDWARE
221-223 Main Street
Gloucester, Mass.
July 22, 1933.

Toledo Pipe Threading Machine Co.
Toledo
Ohio

Gentlemen:-

As a matter of interest, we wish to advise you that we have just completed building the Bunk Frames for the Sch. Gertrude L. Thebaud, well known racing fishing schooner, which leaves here in a few days for the Century of Progress at Chicago, Illinois.

These bunk frames were constructed of 3/4" galv. iron pipe and fittings, and in the construction of same it was necessary to cut 130-3/4" iron pipe threads. We wish to call to your attention the fact that these 130 threads were all cut on a No. 999 Toledo Power Pipe Threading Machine by a mechanic and an apprentice in 1 3/4 Hours. When you realize that this is a little over 3/4 of a minute per thread, one can easily see the speed, which can be achieved on your machine.

We hope this information may be of some service to you in your promotional work.

Yours very truly,

L. E. SMITH COMPANY

By Ernest H. Tarr

EHT/EIM

Sch. Gertrude L. Thebaud, famous Gloucester racing schooner, and winner of the International Races with Canada, is truly a champion. Fast, smooth sailing and easy to handle, this famous ship is like the "TOLEDO" No. 999, 1/2" to 2" pipe machine. These Gloucester contractors in building the new bunk frames produced 130 3/4" iron pipe threads in 1 3/4 hrs.

Compare these figures with other methods of cutting and threading pipe, and you will readily understand why thousands of No. 999 owners, say it is the finest 1/2" to 2" pipe machine on the market.

A post card to us will bring you complete information regarding this remarkable machine.

THE TOLEDO PIPE THREADING MACHINE CO., TOLEDO, OHIO
NEW YORK OFFICE, 72 LAFAYETTE ST.

"TOLEDO"

OUR INDUSTRY

October, 1933

Biggest Code Job Still to Come

GENERAL HUGH JOHNSON tells us that the whole NRA program was planned in three parts. First, industry was to be brought under the President's blanket code. Our industry has done that. Second, industry was to provide itself with codes to regulate itself in the interest of fair competition and better wages. The codes of our industry are still under discussion. Third, enforcement of these codes must be secured on as a simple and workable a basis as possible. The biggest job for our industry and for the NRA is still ahead.

Asks Support of Associations

ORGANIZED activity through the trade association has received an exceptional push forward in the past few months. Now, one of the well known agencies of our industry, the Plumbing and Heating Industries Bureau, in turn decides to give up dependence on individual support and to turn to associations for its backing. The Bureau directors feel that such backing would be more secure and would be more in keeping with the trend toward combined rather than individual action.

As reorganized, the Bureau, successor to the Trade Extension Bureau, will be the central agency through which associations of manufacturers, wholesalers and contractors, can carry forward a program of public education which no one group or branch can afford to finance. The Bureau in recent months has been solely a publicity agency, devoting its full time to securing through newspaper, magazine and radio channels publicity for our industry, our products and our ability to add to the comfort, health and convenience of the American people.

Whole Industry Will Benefit

THAT is an important job. No other agency has tackled it. No one branch should do it alone. Everyone benefits, the manufacturer for whose products a public demand is aroused, the wholesaler through whose warehouse the goods are assembled and distributed and the dealer who makes the sale and the installation.

The Bureau has set up a budget of $14,000 for next year. As President Barrett of the National Association of Master Plumbers recalls, this is a trivial sum compared with the total sales of our industry. It is a small sum to invest in publicity which will keep the advantages of our services in the minds of the public.

With associations taking a stronger position in representing and in some cases regulating their industries, the time seems opportune to put a program for the benefit of our whole industry on those associations.

Plan Help for Building Industry

SOME Washington observers are predicting a building boom by next spring. The important place which the construction industry holds in our national economy is better realized now than it was a few months ago, so that governmental efforts to keep business on the upswing are turning more toward aiding our industry and other "capital goods" industries.

It isn't necessary to believe in the coming of a "boom." Just some more substantial business will do for a starter. The public works program is one effort to aid building. Clearing away of some of the debris of mortgage financing is a subject figuring prominently in Washington news. With a pent-up demand for the building industry's products, only a small measure of success from these federal efforts should start the ball rolling faster.

Soil Pipe Code Delays Others

Provides New Sales Set-Up

OUR industry continues, through its different branches, to wrestle with the new and troublesome problem of working out codes of fair competition. The cast iron soil pipe industry has secured President Roosevelt's approval of its code, the only branch of our industry which has put its code past the White House desk. But its provisions are under strong fire and a determined effort is being made to secure its amendment on the basis that it introduces into that industry distributing methods contrary to past practices and, apparently, not representative of the plans and wishes of some pipe manufacturers.

The plumbing contractors asked for a postponement of the hearing on their code as the soil pipe development threatened to change the entire plan under which these contractors had been working. Unless amendment to the soil pipe code is secured, the plumbing contractors probably will have to revise their code to meet these altered conditions.

The heating contractors are working as a subdivision of the construction industry, hastily recognized as an industry to simplify the problem of correlating the many groups in the building field.

The wholesalers, working as a national group through a joint committee, held a hearing on their code on Oct. 3. Their code had been withdrawn during September, had been revised and resubmitted. The wholesalers likewise are concerned over the situation created by the surprise development in the soil pipe code. They have been working in closer harmony with the contractors and almost continuous meetings have been held in Washington in an effort to work out an answer to this development.

Manufacturers in turn have been submitting their codes for analysis at Washington, many of them have been returned for changes and at present they do not know of any definite date when final approval can be expected.

SURPRISE IN SOIL PIPE CODE

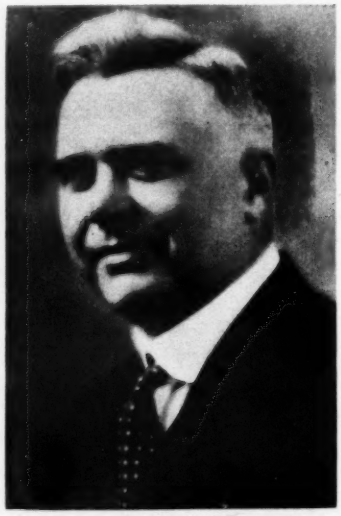
The soil pipe code situation is interesting and significant. Under its provisions as approved by the President, the wholesalers, mail order and direct-to-you companies buy on a wholesale basis, 10-10-5 discount. The two latter groups, we are told, are permitted to sell at retail and to install. The recognized wholesalers would not retail or install. The contractors, in turn, also doing the retailing and installing, could buy in carload lots at only 10 per cent discount.

This set-up, which was not in the code as submitted, but was introduced subsequently, puts the mail order and direct-to-you companies in as good a buying position as the wholesaler and a better one than the contractor. It puts them in a better distributing position than the wholesaler as they can sell at retail against the contractor who is at a disadvantage because of his higher buying price.

Leads Plumbers' Association in Code Plans

In his position of president of the National Association of Master Plumbers, Robert J. Barrett has taken on a full-time task. That position has steadily made heavier demands in recent years on the individual who held it. Now, Mr. Barrett faces the unusual and complex problems brought to every industry by the NRA program.

At the Buffalo convention, a few weeks ago, of the master plumbers of New York state, Mr. Barrett told of his code work since he started on April 22; the development of a general code which was offered for study to the entire industry; the decisions of other branches to develop their particular codes; the work on the plumbers' code; the scrutiny of other codes; the intricate relationship with the government which was itself trying to bring order out of this new code program; the efforts to compose differences between the things the contractors felt essential and those which manufacturers and wholesalers were prepared to offer, and finally the situation created by the introduction into the soil pipe code of distributing practices which threatened to offset much of what had been done.



Robert J. Barrett, President, National Association of Master Plumbers.

A bright spot reported by Mr. Barrett was the great increase in membership in the National Association of Master Plumbers. Washington, California, Texas, Kansas, Florida, Alabama, New York, New Jersey, Pennsylvania, Illinois, New Hampshire—it sounded like a roll call of states as he reported large membership gains, bringing the N.A.M.P. total today to the largest in its history.

Catch the Upswing in Business

Your job on the way into the depression was a hard one. It has left scars of discouragement, uncertainty and, to many, a "what's the use" attitude.

Your job on the way out will be more pleasant but the premiums will go to those who catch the upswing and work earnestly and effectively.

The code developments aim to straighten out competition and make it more fair. They aim to make profits a more likely result of your work. But the codes are only the cleared channel. The job of getting ahead is still an individual one.

These next pages give you definite information on the return of rising prices in our industry—the kind of information which stirs prospects into action. They tell you of pitfalls to avoid in estimating on this new work. They relate the huge federal works program (as a starter of building work) to your own locality. And a report on 10,000 daily sales interviews shows the American public is in the mood to buy our goods as soon as the psychology of a rising market breaks down the indecision of the past.

The upswing in business is under way. Some predict a building boom next spring. But whether that comes or not, here are some practical helps for you to use right now.

32 Percent Increased Have Costs

And they have just started to go up

By Wm. W. Stevens

THINGS are happening so fast in the field of prices and economics that many developments have become accomplished facts without it being generally understood or recognized. This was brought to mind forcibly just a few days ago in talking to a contractor about price increases. His feeling was that the price increase in plumbing and heating goods since the first of February was of little consequence. However, when he sat down and refigured a job which he had installed last February, on the basis of September, 1933 prices, he changed his mind.

Prices in plumbing and heating equipment have increased. This increase on some assembled groups of equipment amounts to as much as 48 per cent, considering the seven-month period from February 1, 1933 to September 1, 1933. With every increase in prices, there is a corresponding decrease in the amount which the purchaser's dollar will buy. In other words, to say prices have increased is the same as saying that the purchasing value of the dollar has decreased. This is the significance of the chart shown at the bottom of this page. Notice that April, 1933, was the high point in the purchasing power of the dollar. Since then, there has been a sharp decline, or in other words, there has been a sharp rise in prices.

The point of this is that if home owners are to put in

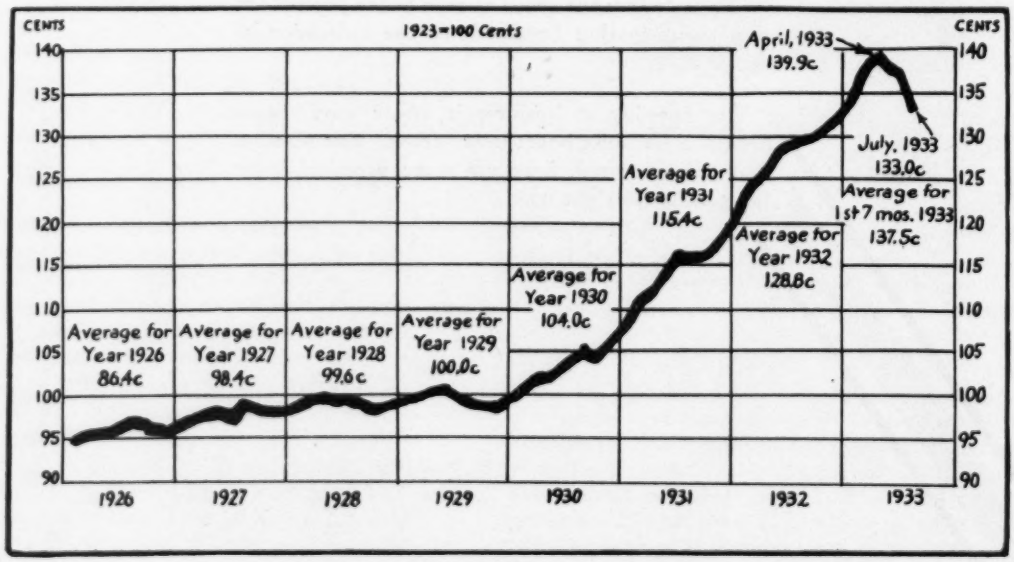
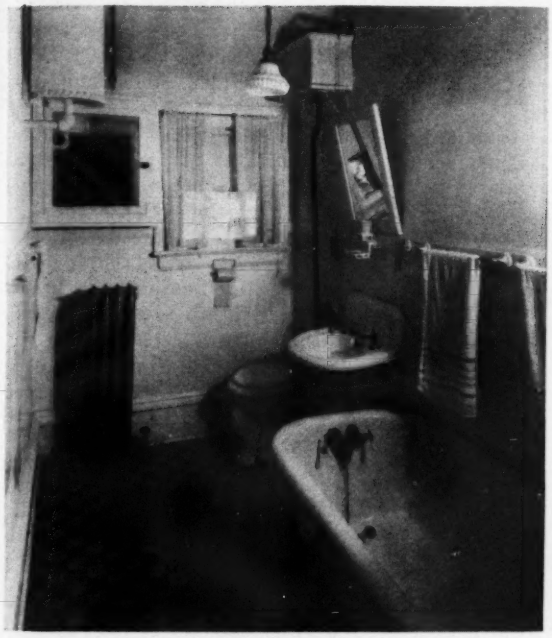


Fig. 1—Here is a chart which was taken from the financial section of the Chicago Daily Tribune. It shows the sharp drop in the buying power of the dollar since April



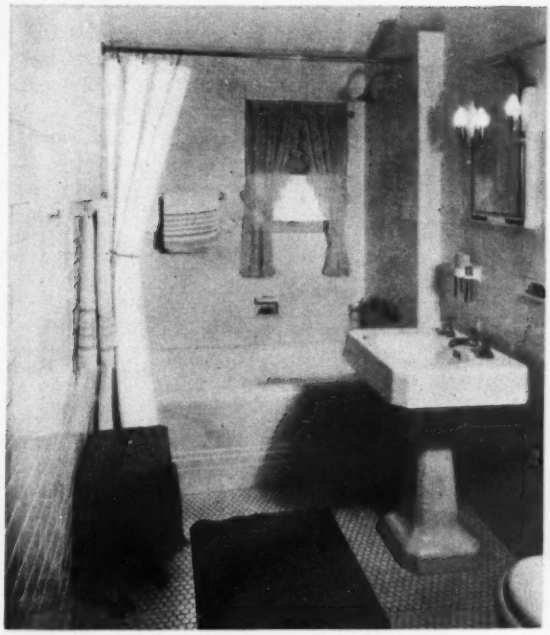


Fig. 2—Above are before and after views of a bathroom which was remodelled last winter. The February 1, 1933 price for the fixtures was $115.56. The price on September 1 would have amounted to $170.65, a rise of $55.09 or 48 percent

that extra bathroom or get a recreation room in the basement through the installation of modern automatic heating equipment, they should get started immediately.

There are too many people, especially prospects, who think that the rise in prices is something which may come some time in the future. The rise is here! What is more, it is scheduled to increase. The very fact there is a feeling that price rises are something to be thought of for the future proves that more rises will come. As a concrete example, consider the installation of the new bathroom illustrated in Fig. 2. This job was installed last winter by a plumbing contractor located in Chicago. His price for the equipment on February 1, 1933 amounted to $115.56. This included the tub, shower, mixing valve, lavatory and trim and the water closet and trim. Obviously, it did not include the cost of the labor, the tile work, the cabinet, radiation or the electric wiring and fixtures. The same job, duplicated on the basis of September 1, 1933 prices amounts to $170.65. This is an increase of $55.09 or 48 per cent.

Home owners were told, several months ago that they should buy before the big rise comes. They were warned with high pressure methods in many fields, that this was their last chance to capitalize on the depression. The rise has come. Owners have accepted it. The world is still going on. The dire predictions of some of the scare heads have not been fulfilled. Accordingly, further warnings may seem to have little effect on stimulating increased purchases. So the object of this article is to demonstrate what has been accomplished by way of price rises. We are in a rising market. If this is impressed upon the minds of prospective purchasers, human nature will do the rest. Witness the recent history of the stock market to find proof that people always buy on rising markets.

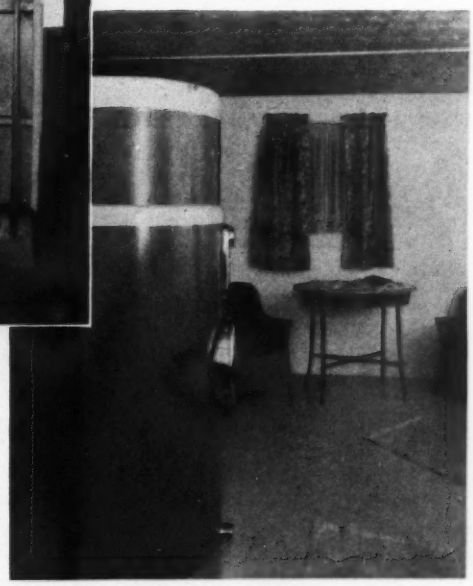


Fig. 3—The original cost of this automatic heat installation was $1,092—present cost $1,207

As a second concrete example of the rise in prices, refer to Fig. 3. In this case, heating equipment is featured. This job was installed in the early part of this year. On April 1, the retail price of this equipment amounted to $1,092. On September 1, this same installation would have cost the owner $1,207 if he had waited until then to have it put in. Incidentally, this increase of $115 applies to the equipment in connection with the boiler and not the boiler itself. Up to the date of our receiving this information, there had been no price advance in this particular boiler, which then retailed at $997. Subtracting this from the original price of $1,092 leaves a price of $95 as the amount of the equipment affected by the price increase of $115.

A third actual example, with prices taken from the records of another contractor shows an increase in cost to the owner of 32 per cent. The equipment in the new bathroom shown in Fig. 4, cost the owner, on February 4, $114. Had this same owner waited until September 1, before he ordered this equipment, it would have cost him $156. Heating equipment in this same building cost $368 on February 1, while the September 1 cost would have amounted to $450, an increase of $92 or 25 per cent.

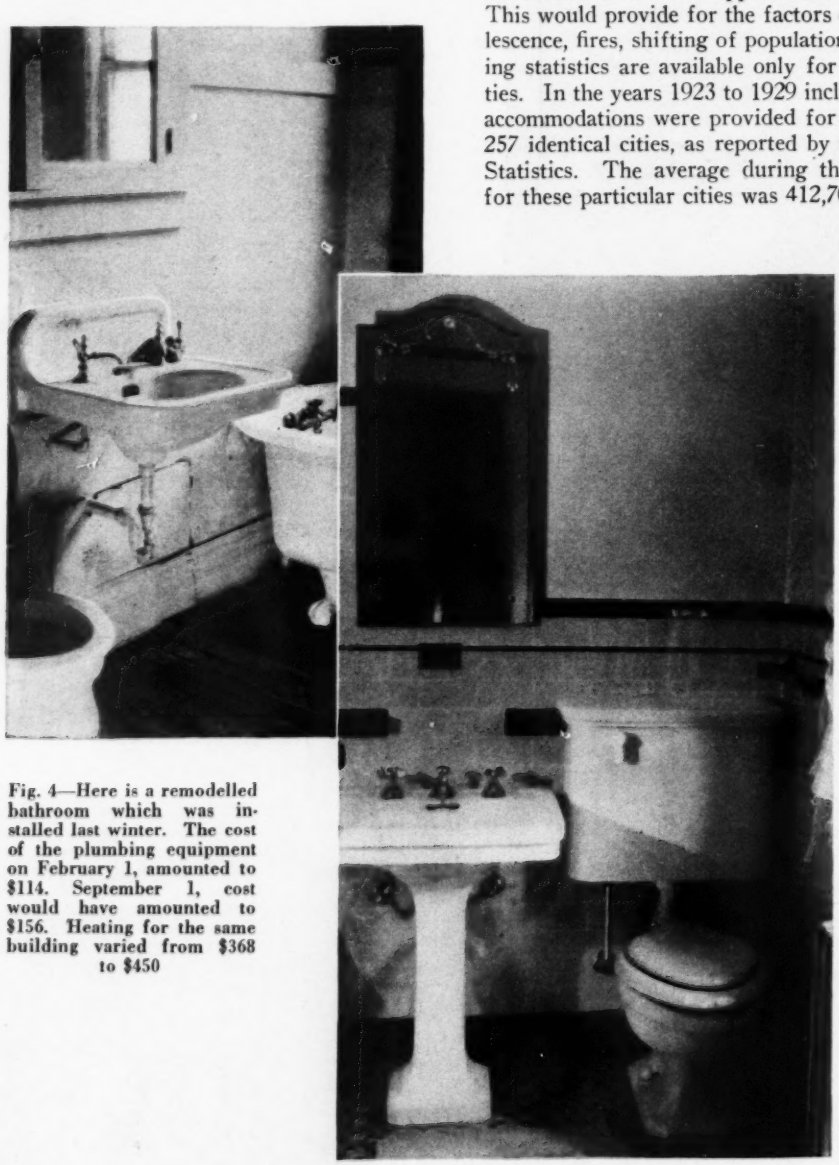


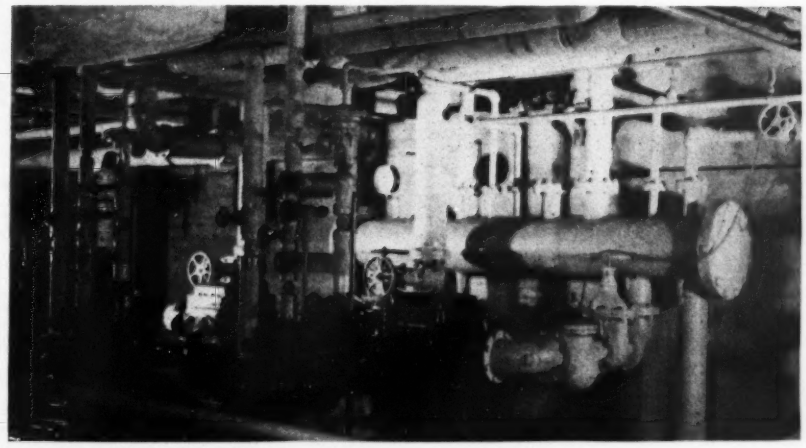
Fig. 4—Here is a remodelled bathroom which was installed last winter. The cost of the plumbing equipment on February 1, amounted to $114. September 1, cost would have amounted to $156. Heating for the same building varied from $368 to $450

Based upon the living standards of the past generation, there is an estimated yearly need of new living accommodations for approximately 900,000 families. This would provide for the factors of depreciation, obsolescence, fires, shifting of population, etc. Definite building statistics are available only for the larger communities. In the years 1923 to 1929 inclusive, new residential accommodations were provided for 2,889,200 families in 257 identical cities, as reported by the Bureau of Labor Statistics. The average during this seven year period for these particular cities was 412,700 per annum. Compared to this average figure for seven years, the number of new family accommodations in 1930 was 125,300. In 1931 this figure fell to 98,200 and in 1932 only 27,100 family accommodations were provided in this group of cities. The estimated growth in population of the entire country from 1925 to 1932 was 10,000,000 and the number of marriages was about 8,500,000.

It is estimated that 1,500,000 homes will be needed in 1934, a shortage unparalleled since 1922.

How to Make Estimates

that lead to a Profit



With all efforts, including those of the NRA, directed toward a condition of better competition, this article at this time is particularly appropriate - - - By George Hall

ESTIMATING — as distinct from guestimating—can best be described as prophetic cost accounting. Considered formally as an important and essential part of operating records, estimating has two functions: to provide a basis for the tender or bid and thereafter, in the event of acceptance of the tender, as the basis of outline for the erection or construction of the physical subject of the contract, and secondly to provide a material survey from which the elements or commodities to be worked into the operation can be purchased. This latter, particularly where the larger operations are concerned, may be considered the least important. Shop drawings will usually provide more accurately for this information. During the final stages of the drawings it will be found that the material lists can be very efficiently assembled. Definite and accurate estimates are a very necessary part of the whole process of selling plumbing and heating material and services under contract.

This business of estimating the future cost of a more or less intangible combination of elements is more an accounting than an engineering problem, though it partakes largely, and might properly be termed, a combination of both. Where the layout of the system or systems and the work of the mechanical engineer has been first performed, it is largely an accounting process. Where the layout is a part of the actual estimating work, it is a combination of accounting and engineering. In this article we will concern ourselves with estimating from the accounting angle, having in mind that the engineer has provided the physical layout from which we are to work and accepting this as the substantial form of the finished product.

Fig. 1—The picture at the top of this page shows a portion of one of the new jobs that the Hyland company installed recently. It indicates the type of background which serves for the basis of this article

At first sight the value of this distinction may be doubted, but you know that theoretically your engineer is not so much concerned with costs as with results, whereas your accountant primarily considers costs.

ENGINEERING AND ACCOUNTING DISTINCTION

In the more or less technical process of assembling plumbing and heating systems, the distinction may be obscured. In order to give form and direction to our discussion of the problem of estimating we will find it helpful. As I have found it helpful in the past in actual estimating work, it tended to induce a detached attitude towards the process of assembling quantities and prices that would later form the basis of a bid.

Since the estimate must be accepted as the approximate bounds within which the work contracted for is to be performed, all the factors bearing on the later performance must be considered by the estimator. Here are the beginnings out of which our job chart is to be developed: the delivery schedules worked out and the actual work done; hence it is important at the time of compiling the estimate that we determine, as closely as may be, the order both of our work and the work of other contractors. Next the possible time available for the various branches of our operation and the period within which the whole job is to be completed. These considerations compel breaking the estimate down into suitable units, which will closely relate to the actual installation. Handling the estimate in this way will enable a check of actual performance against expecta-

PLUMBING

1 *Outside work*
- Water piping
- Sanitary sewer
- Storm sewer
- Gas piping

2 *Inside underground*
- Sanitary sewers
- Down spouts

3 *Interior down spouts*
4 *Waste Stacks & Vents*
5 *Horizontal & Basement water piping*
6 *Water pipe risers and fixtures branches*
7 *Gas piping*
8 *Pipe covering, insulating, painting*
9 *Sundries*
10 *Drains pits and sumps*
11 *Machinery & Equipment*
12 *Plumbing Fixtures*
13 *Labor*

HEATING

1 *Boiler plant*
- boilers
- setting
- firing equipment
- boiler piping
- etc.

2 *H. P. Piping and Reducing sets*
3 *Heating piping*
4 *Heating valves & Specialties*
5 *Radiation, fans & Vento, Space heaters*
6 *Duct work & Grilles*
7 *Pipe covering and insulation, painting*
- Boilers and high pressure
- Heating piping

8 *Temp control & special equipment*
9 *Sundries*
10 *Labor*

tion and will enhance the value of the experience to be gained from any efficiently handled contract.

On any operation of considerable extent the architect will require a job or progress chart for his benefit if not for ours. Let us be logical and make this job chart the basis of our estimating procedure. This can easily be done. No matter how one building may differ from another as to design or purpose, it will be found that the plumbing and heating systems can be brought within a standard focus and that any estimating chart, whether it be the product of an accountant or an engineer, can be adjusted to serve the double function of organizing our estimating practice and guiding our installation procedure.

Acting as a cost accountant the estimator will be able to assemble the cost data. After completion he will be in a position to check final costs against his forecast. Estimating is at best a more or less hazardous undertaking. The risk is accentuated by poor methods.

Below is reproduced an estimating chart which is typical of what the W. J. Hyland Company has used with some success during the past ten years. This estimating system has not gained to us every job we bid, possibly not a good average of all those on which it was used, but it has forecast with more than a reasonable certainty every operation that we carried out on a contract basis. For obvious reasons there is no reference to job or owner's name, date, architect or such other information that any estimate will contain.

VARIATIONS ARE ALLOWED FOR

In this outline the material items are assembled and priced for each head. Should the job require it, the arrangement can be revised or extended, but the method would not be affected. The labor would be noted under each head or subdivision, but would be assembled in the final total as a separate element. It will be noted that we are concerned only with the direct cost of material and labor, other cost considerations which are usually handled as a percentage of material or labor or both have no place here. Theoretically the direct cost will be fixed, assuming that all bidders follow the plan requirements. The other elements, which are an absolute and necessary part of any bid, are subject to the control of the bidder or at least may be established on a whimsical if not on an actuarial basis. The pricing of the job does not fall within the scope of our present article on estimating method.

As for the items as they appear in the chart, little comment is needed. The outside work of any job is usually handled as one unit and lends itself well to estimating and installation on this basis; equally the underfloor drainage and the other subdivisions as they appear. You will note that the arrangement as set up, while probably the most usual, may not always be fol-

Fig. 2—Above is a chart of items entering into an estimate

PROGRESS SCHEDULE FOR ARCHITECT AND GENERAL CONTRACTOR
W. J. HYLAND PLUMBING & HEATING & VENTILATING CONTRACTOR

Classification	Oct.	Nov.	Dec.	Jan	Feb.	Mar.	Apr.	May	June	July	Aug.			Date of Opening	Date of Return
Outside Underground															
Inside Undg. Boiler Room															
Inside Underground															
Stacks, Vents & Downspouts															
Steam & Ret. Mains															
Steam & Ret. Risers															
Horizontal & W & S Mn. Drains															
Boiler & Mach. Rm.															
Pipe Covering Heating															
Radiators & Unit Ht'rs.															
Fans & Blowers															
Plumbing Fixtures															

Fig. 3—At the right is a form for a progress chart to show how the actual work is progressing

lowed in the order given. It is conceivable that the outside work might be last, or the vertical piping might be placed before the underground systems. That does not alter, however, the value of the estimate. As soon as the architect has called his contractors together, the order of the work will be determined. It then remains to put our progress chart together, using the subdivisions from our estimate, either singly or in any combination required by conditions. We have immediately at hand an outline of our job and definite mile posts for its successful accomplishment. From the estimating chart shown above we now develop our progress chart, somewhat in this fashion:

This chart can be combined with all others on the job and a general progress chart developed from which to coordinate the various branches. For your specialized contractor this special job chart will be subordinate to his own. On it he can record the actual progress in colored parallel lines and have at all times an idea of how he and other contractors are moving ahead of or behind requirements, and he will thus have a proper record of all delays caused by other branches. His own chart will govern and guide his own branch of the work.

In recent years, many articles and books have come to my desk which have dealt with this matter of estimating in one way or another. It requires a laborious effort to digest all of them. In most cases the authors have concerned themselves too much with the actual pricing of the material quantities, the correct manner of computing discounts and premiums, the proper way to apply overhead as a proportion of the total price, either cost or selling, and such problems, which are secondary to the matter of getting the survey and quantity estimate workably and efficiently together in the first place. The importance of correct pricing and the equal importance of a properly determined overhead is essential. But unless the units to be priced are not reasonably accurate, no method of computing discounts will produce an accurate estimate.

On small operations, involving little material and completed in a short time it is possible to list materials under one head and labor on some arbitrary or empirical basis, omit a job chart and, up to 1929 at least, make money. I doubt if these methods can continue to be used under 1933 conditions on any kind of work, particularly large operations. It is wasted effort if, in estimating the job, we have not obtained a fair quantity survey. We must either do the entire work again or order at random, getting the wrong sizes and quantities at the wrong time, thus piling up an unnecessarily large "returned to stock" list at the finish of the operation. There is no established standard method for estimating labor on either a money, time, or percentage basis, unless it be experience and a correct cost analysis of previous operations in the same scale or class. Should it develop on previous jobs that labor has exceeded expectations, and the record of that job is at hand showing unit costs, such an error need not be repeated in the estimate under way. It may be that the loss occurred in the outside or underfloor work, where labor estimates are usually in error; if that is the case we have adequate information to guide us. We can do one of two things, accept the obvious and lose the job or ignore it and hope for the best. Under this unit method of estimating, it will be necessary to list quantities of all fittings, valves, specialties, etc., especially those larger and special not carried in regular stock. A special tally sheet for each head should be kept on which all information is carried in detail. It is from these sheets that we can compile our estimates in more condensed form. We should endeavor to estimate closely all items that enter into the system, not on a percentage basis but by actual count for at least all sizes above one inch on all piping. We should measure our covering and insulating materials at the time of listing the piping. We should count all valves, traps, cleanouts and every piece of equipment that will affect the labor required for installation. We should estimate digging on the basis of total yardage, total lineal feet of trench and the average depth. This latter will enable us to determine if timbering or sheeting must be provided for.

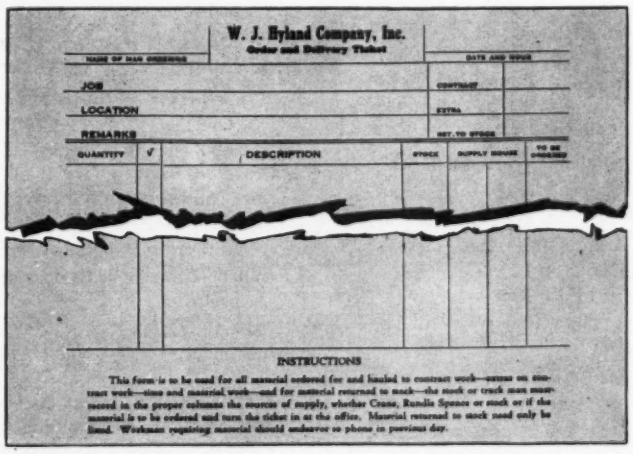

W. J. Hyland Company, Inc.
Order and Delivery Ticket
NAME OF MAN ORDERING
DATE AND HOUR
JOB
CONTRACT
LOCATION
EXTRA
REMARKS
RET. TO STOCK
QUANTITY
√
DESCRIPTION
STOCK
SUPPLY HOUSE
TO BE ORDERED
INSTRUCTIONS
This form is to be used for all material ordered for and hauled to contract work—extras on contract work—time and material work—and for material returned to stock—the stock or truck man must record in the proper columns the sources of supply, whether Crane, Rundle Spence or stock or if the material is to be ordered and turn the ticket in at the office. Material returned to stock need only be listed. Workmen requiring material should endeavor to phone in previous day.

Fig. 4—An order form which is used by the Hyland Company is reproduced here

FINAL STEP IN ORGANIZATION

With the completion of our estimate and job-progress chart we can now proceed to the final step in organizing our project, the compilation of our order register. On this we will record the various items of equipment that are to be purchased, the name of the manufacturer furnishing each, the order number and date.

The order register shown above is suggestive of what may be used. The advantages of this register are obvious and require no comment here.

Handling the job in this way provides three essential features for successful contracting, accurate and helpful estimating, efficient organization and definite control of material supplies. It is not argued that these will assure a profit on any or every operation, but they are basic and will do much to avoid waste.

How Public Works Money Can

On one hand there is a vast resource of money for construction — the largest the world has ever known. On the other, there are crying needs for expenditures. In between, there are heating and plumbing contractors who can act as one of a number of agencies to bring these two forces together. Study the public works act and apply it to your local needs.

THREE billion, three hundred million dollars is the sum which the federal government has appropriated to be spent for public works. Harold L. Ickes, Secretary of the Interior and Administrator of Public Works said, a few days ago in a talk to a large group of mayors in Chicago, "Our national treasury is waiting to be drawn upon for hundreds of millions of dollars for useful public works." He further told these mayors, "The administration in Washington can approve your projects and advance funds necessary to complete them. We can give you money; we can help you to decide what project to undertake; we can assist you with your plans and your specifications and the letting of your contracts; we can aid you in supervising your work; we can meet the charges of the contractors when they fall due; we can even encourage you to speed up your projects. But we cannot do more than this. We cannot decide for you whether you want public works. We cannot make you borrow money from us on favorable terms."

Information comes to us that government men are out urging municipalities and individuals to ask for these funds. Also, it is understood that the government will help to finance preliminary surveys to determine if the construction project under consideration is sound.

The purpose of this article is to tell how readers of DOMESTIC ENGINEERING can get in on this work; how they can start projects which will result in the spending of some of this money, the installation and rehabilitation of equipment, the reemployment of men, and the increased consumption of industrial and agricultural products through increased purchasing power.

WHERE PLANS SHOULD BE SUBMITTED

The set-up of the public works administration is as follows: The Federal Emergency Administration of Public Works consists of the administrator, Secretary Ickes, and various assistant administrators in Washington, ten regional advisers, 48 state advisory boards and 48 state engineers. All non-federal public works projects as well as projects of private corporations should be submitted first to the state advisory boards. The functions of these boards are to consider and to submit promptly to the administrator, with their recommendations, all projects considered.

The state engineer is appointed and directed by the administrator and is responsible to him. The engineer is the executive officer of the state advisory board who employs and directs its personnel, receives, records and examines all applications and reports to the board on each. When an application is received the engineer examines it to ascertain whether it includes all necessary engineering, financial, legal and other information and elicits from the applicant further information as needed. Upon completion of examination, the engineer submits the application to the board and the board to the administrator with its recommendation. The functions of the regional advisers are mainly advisory, having to do with regional and general planning. They consult with the state advisory boards to the end that their action may be consistent with sound regional planning.

PROJECTS THAT CAN BE AIDED

As for the classes of projects eligible for loans, the Act lists, "The construction, repair and improvement of public highways, public buildings, and any publicly owned instrumentalities and facilities (such as bridges, tunnels, docks, viaducts, water works, electric power and light plants, canals, markets, etc.)." Also, the act lists the construction or completion of hospitals, the operation of which is partly financed from public funds, as eligible for loans. Other projects, such as the conservation and development of natural resources, low cost houses and slum clearance, and railroad maintenance are included in this act.

As for loans to private corporations, the act stipulates that they will be made to aid in "carrying out the construction, replacement or improvement of bridges, tunnels, docks, viaducts, water works, canals and markets devoted to public use and which are self-liquidating in character."

Whether such projects could be interpreted as including modernization of mechanical equipment in certain private buildings and plants is a question to be decided for each individual case. Certainly, if any public use or good can be construed as resulting from such modernization, an application for a loan from a private corporation for such purposes should be made. The act does not authorize any grant in connection with loans to private corporations.

Be Obtained for Building Projects

It is evident therefore, that it is within the possibilities of the act to get the government to do more than it has done to date, in allocating part of the $3,300,000,000 appropriation for modernizing mechanical equipment in existing public properties and also to get state, municipal and other public bodies as well as private corporations to do more than they have in applying for loans for projects including such modernization.

HOW THIS PROGRAM CAN BENEFIT INDIVIDUALS

The question which usually comes up in the mind of the ordinary individual who is interested in obtaining work so as to keep his organization functioning, is how can this public works program be of direct benefit to him. For instance, one heating contractor had the experience of bidding on a post office to be constructed in the suburb in one of the large cities. Fifty-four other contractors from all parts of the United States also were bidding. Another reader has written to us and he says he can't see how this public works program can be of direct benefit to him in obtaining contracts for his company because he sees it in relation to only the bigger jobs which require steam shovels, more mechanical equipment but not putting many men to work. He prefers to see this program directed to a lot of small jobs.

These viewpoints are mentioned here because in this article we want to consider the question from all angles. Obviously, if these opinions and experiences prevail, there is little incentive for individual contractors to go out and try to increase their business by promoting this public works program. With the competitive system, it is unreasonable to expect one contractor to initiate a project unless he has a good chance of obtaining the contract for carrying it to completion.

The promotion of the public works program by individuals, including plumbing and heating contractors who want contracts, may be viewed in two ways. First, any construction activity, no matter who engages in it, will put men back to work both in actually doing the work and in producing materials and equipment used in the operation. Money will be placed in circulation and everyone can not help but benefit by it. These are what might be called indirect benefits from the public works program. Obviously, the contractor who obtains the contract for actually doing the work will benefit both from the contract and from improved conditions.

The second angle from which to view this program is that of private construction. As pointed out earlier in this article, private corporations should be encouraged in applying for loans for projects. Here is where the initiative of the individual plumbing or heating contractor should be recognized. Such work can not help but establish a close relationship between the private corporation and the enterprising contractor which should be much in the latter's favor when the contracts are awarded.

It was pointed out in the September issue of DOMESTIC ENGINEERING that the modernization of existing buildings offered most promising possibilities, in the development of the public works program as far as putting men back to work, and increasing the consumption of industrial and agricultural products by increasing purchasing power are concerned, Russell Grinnell, president of Grinnell Company, first made this proposal.

MANY CITIES ARE GOOD PROSPECTS

Modernization of existing structures brings the public works program within the reach of all. A city hall in a town of 10,000 with an antiquated heating system is a likely prospect and certainly it would not require steam shovel methods or an elaborate engineering and contracting organization to bring this building up to date and make it a self-liquidating investment for the city and government through the savings effected.

From this discussion of the possibilities of getting action on expenditures for modernizing mechanical equipment, and of the procedure in which public works projects will be considered and approved, it is evident that anything any individual or group can do in urging state engineers and officials of the Federal Emergency Administration of public works to give consideration to modernizing mechanical equipment will be beneficial. Especially in the smaller cities and towns, who is in a better position than the local plumbing or heating contractor to know whether or not plumbing or heating equipment in the existing public buildings is obsolete to such an extent that new equipment will pay for itself out of the savings in operation.

DOMESTIC ENGINEERING invites readers to write to us about conditions in the respective localities. We have on file the names of the administrators and regional advisors, the members of the state advisory boards and the state engineers connected with the advisory boards. The latter apparently are the important contacts to make for recognition and acceptance of proposals covering new construction and modernization work. We will gladly supply the names of all or the name of any one State engineer to any of our readers.

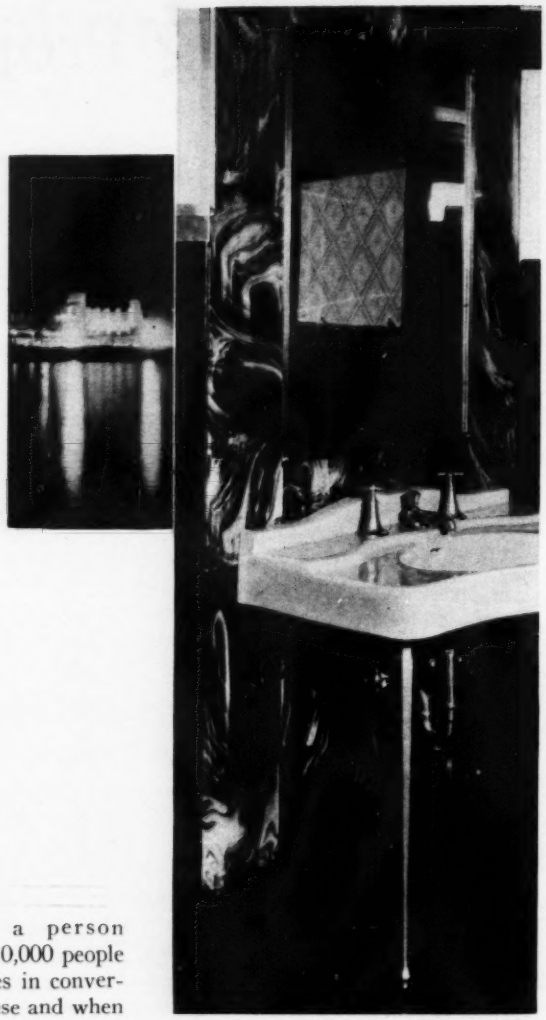


Fig. 1—Here is a dressing table lavatory in spring green color mounted against a background of vitrolite, on display at A Century of Progress Exposition. The small picture at the left shows the Hall of Science with lagoon in foreground

What 10,000 Daily Sales Talks Reveal

WHEN a person comes in contact with 10,000 people a day; when he engages in conversation with many of these and when he hears the unsolicited comments of others, after a time he gets a cross-section idea as to what the average person thinks about regarding the particular item in which they are mutually interested. In addition, when these people come from all sections of the country and reflect the opinions or sentiment of the towns or localities in which they live, the observer's viewpoint takes on the character of a national survey.

This is just what has taken place during the past four months in Chicago at A Century of Progress Exposition. A tour of the three major exhibits of heating, air conditioning and plumbing at the Fair disclosed extremely interesting facts regarding what the public is thinking about. One of the attendants at one of the exhibits in our industry is reported to have said in a half serious manner that he is now able to tell what a visitor will ask by the way he walks into the display. This observer happens to be stationed at a plumbing and heating exhibit which drew 929,700 persons during the first 93 days of the Fair.

This probably is the first time in the history of plumbing and heating that it has been possible to sound out the public's interest in this subject on such a large scale. These major plumbing and heating exhibits have been referred to as a great laboratory in which to determine what things appeal to the public and why; what sales arguments and methods are most effective and what resistances are encountered. The conclusions which have been arrived at by the exhibitors will be of value to plumbing and heating contractors in their calls on both the millions who have visited the Fair and those who are being influenced indirectly by this educational effort. The following is a summary of observations noted by the attendants at the building and display erected by Kohler Co.:

"The men interviewed were, without exception, visibly encouraged by the great show of interest on the part of visitors. They talked with real enthusiasm of

their contacts and experiences with these people.

"The attendance, in the first place, has been gratifying. At times the numbers have actually taxed the facilities and the personnel. While naturally there are some visitors whose interest is limited to giving the exhibits a casual inspection, a large part of those who come display a keen and active interest, carry on among themselves animated discussions of what they see, follow observantly the demonstrations, ask questions, request specific kinds of literature, and show no uneasiness to be on their way. There is a noticeable lack of stand-offish attitude toward attendants, but on the contrary, an eagerness to get the story of the products and their uses.

"Here are some of the interests and attitudes that are most frequently encountered. People want, in the first place, to see what is new—new to them at any rate—to bring up to date their information on the progress that has been made in the plumbing field. The latest in combination sink faucets and sprays, in built-in and cabinet sinks, in the development of ledges in sink backs, grip rails on bath tubs, one-piece closet combinations, these and many other developments of recent months or years gain their attention and generally their outspoken approval.

"There is also a very noticeable interest in how things work, indicating that people, both men and women, are increasingly conscious of the plumbing as a functioning part of the home.

"It is apparent from conversations with visitors that the trade and the manufacturers in recent years have made great strides in educating the people as to the nature and merits of various materials and various kinds of fixtures. For example, it is comparatively rare to find a visitor who does not know something of the merits of chromium and of acid-resisting enamel, and quite generally they understand the difference between enamel and vitreous china.

"Not so long ago there was considerable difference of opinion as to whether there would be an increasing or diminishing demand for color in plumbing fixtures. Attendants interviewed were unanimous in their testimony that the interest in color is definitely and rapidly increasing. Most of the discussion heard on that subject is not as to the desirability of color but as to which of the numerous colors offered the individual prefers. Naturally the preferences vary, but with a rather noticeable partiality for creamy colors and green.

"As a result of thousands of conversations, it is apparent that visitors to the Fair, and undoubtedly the public in general are thinking not alone in terms of plumbing fixtures, but in terms of the relations of the several fixtures to each other and of the total effect of the room, be it bathroom or kitchen. The numerous matched sets of bathroom fixtures on display are attracting a great deal of attention, so are the backgrounds in which they are set—walls and floors, the materials of which they are made, and their color scheme. The time has undoubtedly come when the plumbing contractor or salesman, to enjoy the greatest success, must be able to discuss intelligently not only the merchandise they offer for sale but the treatment of the room in which the fixtures are to be installed, just as the first class salesman of clothing or dry goods must be able to offer ideas on how the garments might be made up and what accessories could be most becomingly worn with them. Even if there are materials which he himself does not handle, he needs to have ideas as to what things are available, where they are available, and at least approximately at what cost.

"Experience at the Fair confirms what nearly everyone has found in his own business, that the American public at present are decidedly price conscious. The generally favorable reaction that seems to have been realized in the plumbing exhibits reflects the fact that visitors generally get a favorable impression as to the values that are being offered. They are visibly impressed with the great improvement made in plumbing fixtures in recent years at no increase, and in many instances at a decided decrease, in cost.

"In this connection, another conspicuous tendency is to rely heavily upon the reputation of the manufacturer and likewise upon the reputation and responsibility of the plumbing contractor who, in a surprisingly large number of instances, is mentioned by name."

The representatives at the Crane Co. building and exhibit, in describing their impressions re-

(Continued on page 52)

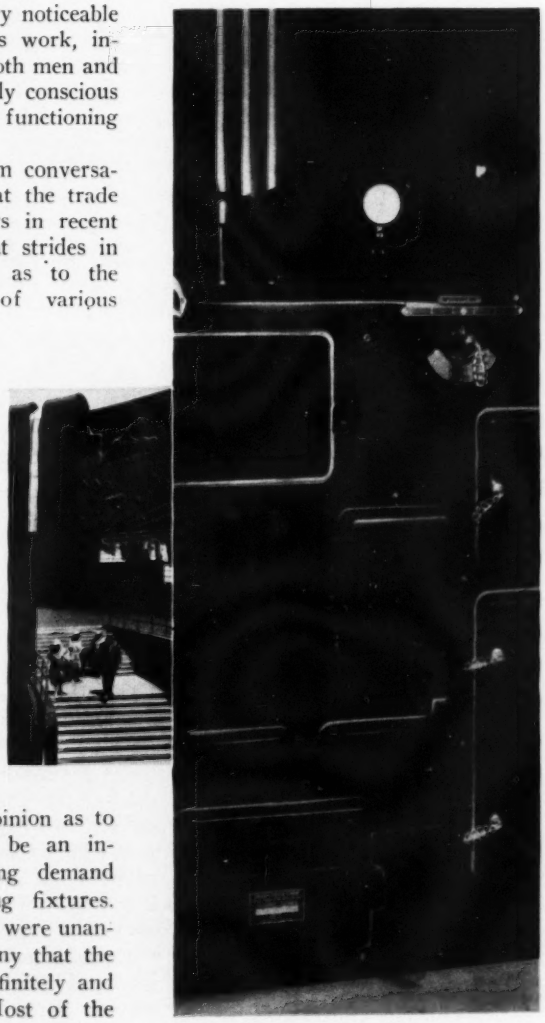


Fig. 2—The boiler shown here is one of a group on exhibit at the World's Fair. The small illustration shows a portion of the Electrical building at the Fair

The Answer to Water Hammer

Report Covers Thorough Investigation

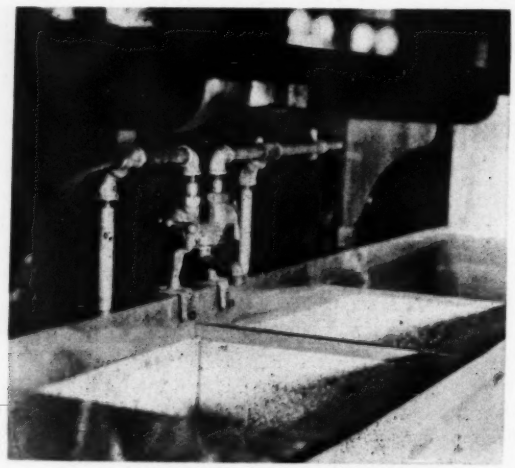


Fig. 1—Here is a horizontal air chamber installed under a bar. Since this type of connection is frequently encountered, further investigations to determine its effectiveness are justified

By Walter S. L. Cleverdon

In the New York University laboratories we have tried to visualize what is actually taking place in plumbing and reduce assumptions to a minimum. Here, glass traps and pipes are used. Atmospheric pressures inside and outside of plumbing systems are measured with sensitive instruments. The relations between pressure or head and velocity, and frictional losses caused by this transformation, are carefully measured under various conditions. Everything is measured or weighed and nothing is guessed at.

We found a trap will siphon as soon as the unbalanced atmospheric pressure between the inside and outside of the plumbing system is just a little in excess of the pressure represented by the depth of the seal of the trap. For example, a trap with a depth of seal of 6 ins. required only an unbalanced pressure of 3 ounces to siphon it. A complete vacuum and an atmospheric pressure of about 15 lb. was not required; but only a reduction in atmospheric pressure in the line of 1¼ per cent caused the trap to siphon.

Water hammer, the subject of this paper, has been taken up under the following sub-divisions or questions:

1. What usually causes water hammer in plumbing?
2. Are all water hammers of a similar nature?
3. How may water hammers be reduced or eliminated?

We believe answers to these questions are of particular interest, especially to those who encounter water hammers in practice. Here the master plumber has little or no way of finding out what is happening other than he knows shock is taking place, property is being ruined and annoyance to tenants is producing dissatisfied tenants.

We, therefore, included in our experimental work the investigation of water hammers in new buildings with modern plumbing. In one of these cases with a pressure furnished from a roof tank of 70 lb. a water hammer of 700 lb. was recorded whenever an attendant operated a valve on a large washing machine in the laundry.

HIGH PRESSURES ENCOUNTERED

We were unable to buy an instrument designed for recording water hammer from any of the gauge companies to which we applied. Some suggested a recording gauge, but in the case just mentioned the gauge simply threw ink all over the chart, recording nothing definite due to the severity of the shocks.

At the suggestion of Professor Erwin H. Hamilton of the College of Engineering, we experimented with an engine indicator with considerable success. The indicator piston recorded the shocks vertically while the works of a clock operated by a heavy weight produced the horizontal motion of the indicator, recording the periods during which the shocks occurred. Diagrams of water hammers produced by these instruments are shown here. The horizontal distance represents the time dur-

From a paper presented at the Buffalo convention of the New York State Association of Master Plumbers, Sept. 12.

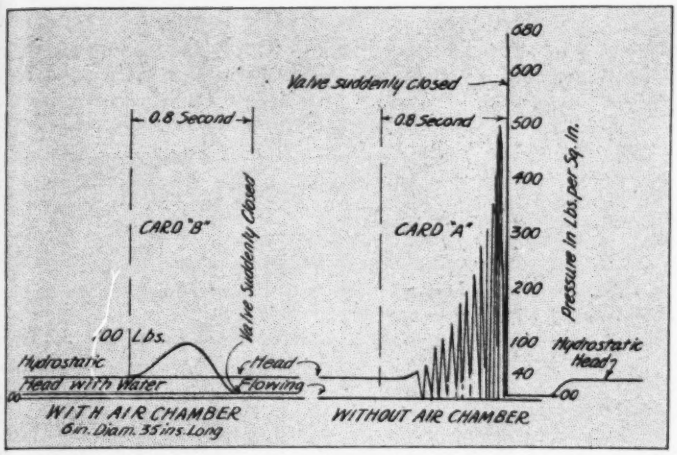


Fig. 2—This chart shows water hammer in a 2-in. pipe with hydrostatic or initial head of 40 lb. discharging with open end into the atmosphere when valve at end was quickly closed

ing which the water hammer was taking place; while the vertical lines represent the number and intensities of the strokes. The time is recorded quite accurately, but in some cases the shocks came so rapidly that they could not be clearly distinguished one from another. Their intensities are, however, clearly marked.

Water hammer is produced by suddenly closing a valve in a pipe line through which water is flowing. The intensity of the water hammer will depend on the volume of water, the velocity at which it is travelling and the suddenness with which the valve is closed. If we know these quantities and intensities we could calculate readily the shock or water hammer.

CAUSE OF WATER HAMMER

Water hammer is also caused by suddenly opening a valve, allowing water to flow under pressure from a full pipe into a pipe containing nothing but air. This water hammer can be eliminated by opening valves or faucets on the line to be filled so that the air may readily escape as water enters. Then the supply valve must be opened very slowly. In fact, if the line is very large, the supply valve should be opened very slowly and only partly opened until the line is full. Otherwise, the water and air may suddenly exchange places, causing very severe water hammer. As the line fills with water and the faucets or valves begin to flow at the lower levels, they may be shut off until the empty pipe is completely filled.

Water hammer is sometimes caused by the water in a hot water system becoming overheated. Under these conditions the overheated water may remain as water under the prevailing pressure; but as soon as a valve is opened, relieving this pressure, the water flashes into steam producing very high velocities and shock. When the valve is closed, severe water hammer usually results.

Water hammer produced in a very small pipe which is connected to a large pipe will frequently dissipate itself in the larger volumes without causing any damage. If a line is full of water in which a valve is closed with different pressures on each side of the valve, no water hammer will be caused by suddenly opening the valve.

Water hammer, where the water flows freely through a pipe, ordinarily develops as one severe shock followed by many reducing shocks until it is exhausted. See Fig 2, Card "A". Where there is much air in a pipe and the velocity of the water is low, water hammer frequently will appear as one shock, but not so severe as shown in Fig. 2, Card "A", followed by very much reduced shocks, in many cases appearing only as slight increases in pressure until exhausted.

By placing a check valve, pressure reducing valve, or other automatic quick-closing valve, in a line against which water hammer may rebound, the intensity of the shock will be about doubled and the number of shocks increased many fold. In fact, the repetition is so frequent that it is quite impossible to measure each one accurately. See Fig. 3, Cards A, B, C and D. The efficiency with which these very severe shocks, shown in Fig. 3, Cards A, B, C and D, were reduced by an air chamber is shown in Fig. 3.

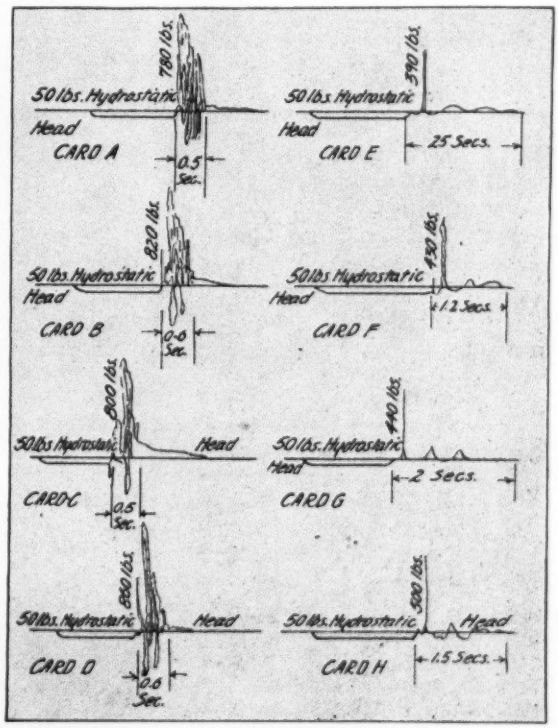


Fig. 3—This shows water hammers produced in a 2-in. line with check valve 32 ft. back of control valve, by suddenly closing control valve. Cards A, B, C, and D were taken with disc in check valve, while cards E, F, G, and H were taken with disc removed from check valve

The shocks were reduced approximately 89 per cent or from 780 lbs. to 90 lbs.

Where water hammer does occur, it is, therefore, dan-

gerous to have a check valve or other obstruction in the line without putting in a suitable air chamber to eliminate or greatly reduce the water hammer.

As shown by the above diagrams, all water hammers are not of a similar nature. Different conditions produce different intensities of shock and more or less of them,

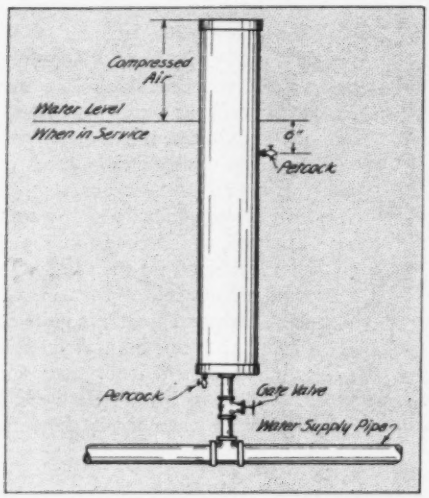


Fig. 4—This illustration shows the details of an air chamber which was experimented with

but we found that by repeating water hammers under the same conditions they are very similar as to intensity and number of shocks. Therefore, patching up damage done by water hammer on a line without removing the cause of the water hammer is only preparing for a repetition of the trouble.

Where the water hammer is produced by filling a line containing nothing but air, from a line containing water under pressure, follow the directions given above and take sufficient time to do it thoroughly.

In case the water hammer is caused by water becoming overheated under pressure and flashes into steam when the pressure is relieved, all that is necessary is proper thermostatic control to remove the causes of this kind of water hammer.

The elimination of water hammer produced under the above conditions is, therefore, a very definite and simple problem; but where water hammer is caused by quick-closing valves, large volumes of water and high velocities, more of which are applied every day, a more difficult condition presents itself.

Figures 2 and 3, Card A, all taken in the New York University Hydraulic Laboratory, show that these water hammers may produce shocks with intensities of from 15 to 20 times the original hydrostatic pressure. Figure 4, taken in a new building at a washing machine, shows that ordinarily we may expect in actual practice water hammers of at least 10 times the original hydrostatic pressure. The noise and the vibrations of the pipes caused by this water hammer were so severe that it frightened the employees in the laundry and in the boiler room.

An air chamber as shown in Fig. 4, containing 990 cu. ins. of air at atmospheric pressure and 225 cu. ins. at 50 lb. gauge pressure, which was the hydrostatic head, reduced the water hammers as shown in Fig. 3 to the slight gradual increase in pressure, which can hardly be called a water hammer shown in Fig. 3. This air chamber eliminated anything that might be objectionable in plumbing.

In the case of the laundry, see Fig. 6, with a hydrostatic pressure of 70 lb. and a water hammer of 700 lb., an air chamber containing 10,850 cu. ins. at atmospheric pressure and 1,880 cu. ins. at 70 lb. gauge pressure, reduced the water hammer to 10 lb., which could be detected by the indicator only. It was not noticeable otherwise. This water hammer was generated on a 3-in. line while those in the laboratory were on a 2-in. line.

SIZE AND SHAPE OF CHAMBER

While we have no definite rule as yet for determining the exact shape and size of an air chamber for any particular case, the following facts obtained from our experiments are of interest in selecting an air chamber.

A smaller air chamber would probably have given sufficient relief in the last mentioned case for the reason that this one eliminated the water hammer almost completely, and the reduction in water hammer does not decrease as the cubical content of the air chamber increases. We found that by increasing the cubical content of the air chamber four times, its efficiency only increased 25 per cent.

A short air chamber of large diameter is more efficient than a long air chamber of small diameter. We found that two chambers of the same capacity one 6 in. in diameter and 18½ in. long was 27 per cent more efficient than one 2 in. in diameter and 164 in. long. The efficiency of the former was 73 per cent and of the latter 46 per cent under the same conditions.

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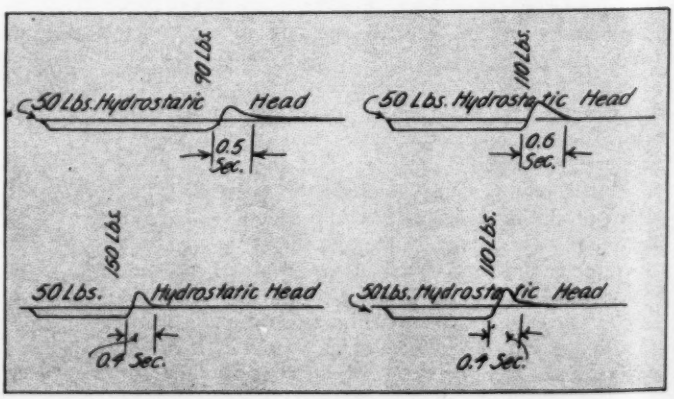


Fig. 5—These charts show water hammers produced in a 2-in. line with the check valve 32 ft. back of the control valve, by suddenly closing the control valve. The disc in the check valve and an air chamber 6 in. in diameter and 35 in. long were in service

Fig. 1—Above is a view of one end of the swimming pool room showing the door to the filter and equipment room. President Roosevelt is seen at the right in the water with his granddaughter

The White House Pool

Article II

By E. H. Brandt, Jr., President,

Reliance Engineering Company, Inc., Washington, D. C., and Charlotte, N. C.

THE water supply for the pool was obtained by making a new connection to an existing four inch line in the basement of the Executive Office Building. The new line, also four-inch, was installed in the pipe tunnel connecting the office building with the Executive Mansion. For part of the distance the new line replaced a two and one-half inch line feeding the office air conditioning equipment, all old connections being rearranged and tied into the new piping system. Sewer connections were made in the same pipe tunnel to an existing ten-inch sewer.

The steam and water connections were made at night to avoid interruption of these services. Steam connections were required to be completed before any ceiling work could be done by the builder, as an existing line on the old ceiling could not be disturbed since it supplied a portion of the heating system in the Executive Offices. A tee was provided in the new layout and early in the job the new connections were made and steam was being

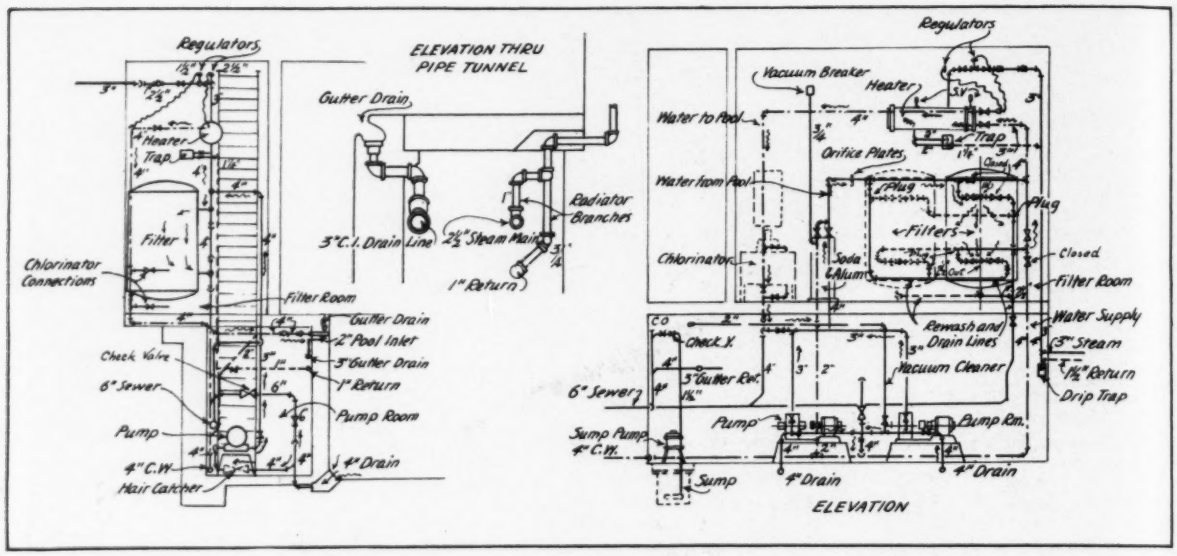


Fig. 2—The elevation at the left is a side view of the machinery room while the elevation at the right shows a front view. Note that the equipment was installed on two levels. Room was at a premium

supplied replacing the old line, thus permitting its removal. In making the water and sewer connections some thirty-inch concrete walls of the original pipe tunnel, constructed many years ago, had to be cut through, keeping an air drill busy for several days.

The machinery room was built in two levels, in the lower of which were contained the pumps, many of the control valves, and much of the piping system. There are three motor driven pumps, two of the horizontal type, and one of the vertical shaft type. The two horizontal pumps are two-inch by two and one-half inch single stage, double suction, horizontal split casing type, complete with base and each directly connected by flexible couplings to direct current motors, operating at 1750 R. P. M. The capacity of one pump is 55 gallons per minute against a forty-foot head; the other is designed for 110 gallons per minute against a forty-foot head, when operating at the above speed. Both are equipped with double suction enclosed impellers of the non overloading type.

The 55 gallon pump is used for circulating the water in the pool. Water is pumped from the pool, through the orifice plates, which control the rate of flow as indicated on the gauges, through the filter, through the heater, thence through the sterilizer and returned to the pool, this being the normal operating cycle.

For back-washing the filters, the 110 gallon pump is used. Also about once each week this pump is used for cleaning the pool with a vacuum cleaning device, attached from two outlets in the suction header, ahead of the pumps.

Both pumps can be used for quick emptying of the pool to aid the gravity discharge. Due to the four functions of the pumps, namely, circulating, back-washing, vacuum cleaning, and pool draining, units of proper design and characteristics were important and essential, so that the motors would not be overloaded under any operating condition from shut-off head to zero head.

The third pump is a vertical shaft submerged electric cellar drainage unit, to take care of the tunnel and miscellaneous drainage from a sump pit. This unit delivers nine gallons per minute against a 22 foot head, and is self-contained, and fully automatic, with motor and motor switch mounted on a cover at the floor level.

PIPING ARRANGEMENT IS COMPACT

Arrangements of piping and equipment in the lower level of the machinery room are, of necessity, extremely compact. Heating supply, return and drip lines, city water supply line, the pool recirculating piping system to the pumps and filters, the drainage system, vacuum cleaner lines, together with the various electric circuits, constitute a veritable network of piping. Connecting to the machinery room, which is at the west end of the pool, on the south and east ends of the pool, pipe tunnels have been built, through which the various distributing lines are run. On the north sides the piping is built into the wall construction.

For conservation of space, a ladder located at the north wall leads from the lower level to the highest piping and valve nests in the machinery room. Removable gratings are arranged at the main floor level for accessibility to the pumps, and for ventilation of the lower level and pipe tunnels.

In the main floor portion of the machinery room, filtration, sterilization, and heating equipment have been installed, plugged tees having been left in the piping for future additions of equipment.

The filter unit is arranged with a wash water distributing and filtered water collecting system in the bottom, and water distributing and wash water overflow piping in the top. The filtering material used is made up of seven different grades of silica, especially selected, and ranging from the largest size, at the bottom, to the finest, at the top.

For the proper coagulation of the water before filtration, the filter is equipped with two chemical feeders, one for alum, and the other for soda ash. These feeders are connected to automatic differential proportioning and introducing devices, so as to feed the reagents in direct proportion to the rate of flow of water through the filter.

The filter is equipped with a device for indicating the rate of filtration during service, and the rate of flow when back-washing. An automatic relief valve is provided at the top of the filter to prevent air binding. A sight glass is installed in the waste line for observing the condition of the waste water, when washing the filter. Rewash piping is provided for discharging clear filtered water into the pool. The rewash line also is provided with a sight glass for observing the condition of the filtered water prior to discharging it back into the pool. The filter is equipped with pressure gages for indicating the incoming water pressure and the pressure or loss of head, through the filter, so as to determine when back-washing is necessary. Sampling bibbs are provided for drawing samples of the raw or unfiltered water, and the filtered water.

The rate of flow indicator, pressure gages, and sampling bibbs are mounted on a black enameled steel gage board, with sink attached for catching any spillage of water when drawing samples of the filtered or unfiltered water.

By-passes have been provided in the city, or raw water piping, for washing the filter direct, either with city water, or water directly from the pool, at the operator's option, the same gages being used.

For fast filling of the pool, city water is passed directly through the heater for tempering, but by-passing the filter and sterilizer. After filling with city water, recirculation is started from the pool, through the 55 gallon pump, filter, heater and sterilizer in the order named, water being pumped from the deep end and discharged back at the shallow end. A hair-catcher has been inserted in the piping between the pool and the pumps, for catching hair and lint from bathing suits.

From the point of entrance at the lower level, the high pressure steam line is carried vertically to its highest point in the machinery room, this line being dripped at its base through an air release bucket trap, with an automatic air by-pass. Condensation after being discharged from this trap is lifted six inches to the level of the return main. The heater supply line is taken directly from the high pressure steam main—the pressure varying between twenty and thirty five pounds. For supplying the heating system, a double seated pressure reducing valve was installed. Pressure gauges with six-inch dials have been placed on both sides of the reducing valve, with a safety or relief valve on the low pressure side, set at ten pounds.

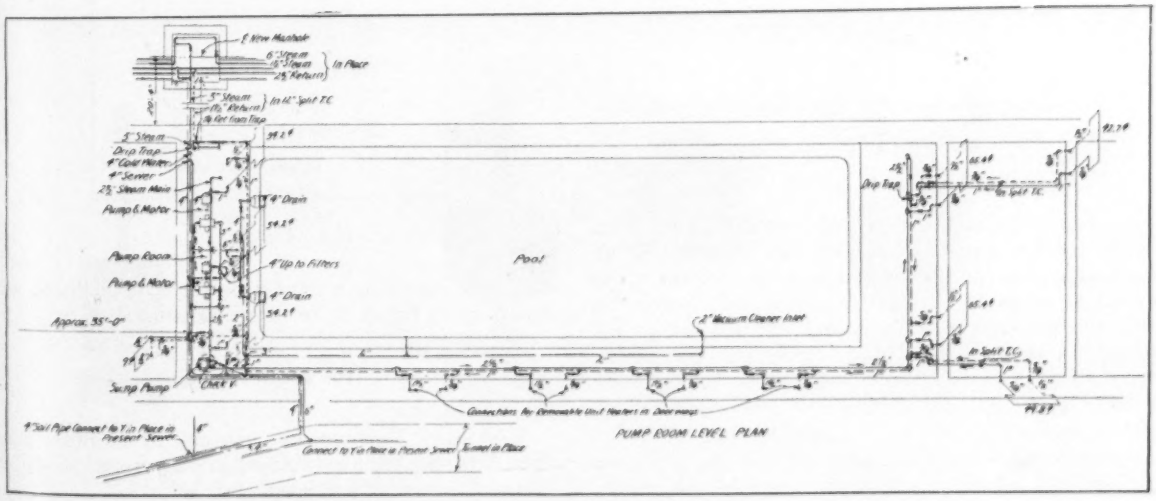
WATER IN POOL IS HEATED

After the water discharges from the filter, and before entering the pool, it is passed through an instantaneous type steam water heater for the purpose of raising the temperature to any desired degree. Water from the pool circulates through the copper tubes which are surrounded by steam in the body of the heater. A capacity of 6450 gallons hourly, based on a sixty degree rise, with steam at 20 pounds, can be had. Control of the water temperature is effected by two thermostatic type diaphragm actuated regulators, a two and one-half inch operating when the pool is being filled or a considerable amount of quick heating (by-passing the filter) is required. A one and one-half inch valve is used when circulating through the filter. In both cases the thermostatic sensitive bulb elements are inserted in the water line entering the heater, through which city water or recirculated pool water flows, at the operator's option. Both valves are entirely automatic.

The condensation from the instantaneous heater is handled by a combination float and thermostatic trap, arranged to handle quicky, the large quantities of water, occasioned by quick heating, thereby freeing the heater from condensation at all times. This trap is fitted with a thermostatic by-pass.

(Continued on page 116)

Fig. 3—The floor plan of the pool and equipment at the pump room level is shown below. The points at which the mains were tapped are indicated clearly



Questions AND Answers

1—

TO THE EDITOR:

The other day I ran across a heating problem. A diagram of it is enclosed, (Fig. 1).

The radiator on the third floor does not seem to heat, and I can not see why. The heater and heating system is of ample size and the rest of the house heats satisfactorily. A. M. H.

Elkton, Md.

TO THE READER:

As for your question regarding a hot water radiator which does not heat, your sketch points out the difficulty very clearly. You have an up-feed system of hot water heating and the top radiator which you say does not heat is connected partially as if it were a down feed system.

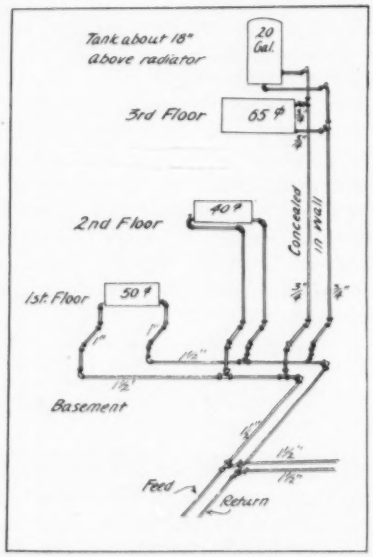


Fig. 1

According to the way you have it connected, there is no reason for hot water to enter the top radiator. All of the tendency is for the circulation to be around it. It should be remembered that circulation will follow the lines where there is least resistance and will not go out of its course unless it is made to do so. The sketch marked Fig. 2 shows how the radiator can be connected in order to promote circulation in it. Also, connections for the expansion tank are indicated. With these connections, there will be no circulation in the tank and consequently the water will not be heated by the system.

1. Why doesn't the radiator on the third floor heat? Reply from reader answers inquiry as to how the job was corrected.

2. Method is devised to control water heating installation so as to limit the amount of water heated except during peak periods of demand. Analysis questions if saving is worthwhile.

If it is desired to heat the water in the expansion tank, then the connections shown in Fig. 3 can be used. Here there is positive circulation provided for the tank as well as for the radiator. Your sketch shows no provisions for venting or overflow. Figs. 2 and 3 take care of this.

There is another defect in connection with your radiator. The riser is ¾ in. while it should be 1-in. On the third floor, a ¾-in. pipe is rated as being large enough to supply up to 55 sq. ft. of direct radiation. You have 65 sq. ft. installed and in addition there is a load as a result of heating the water in the expansion tank. A

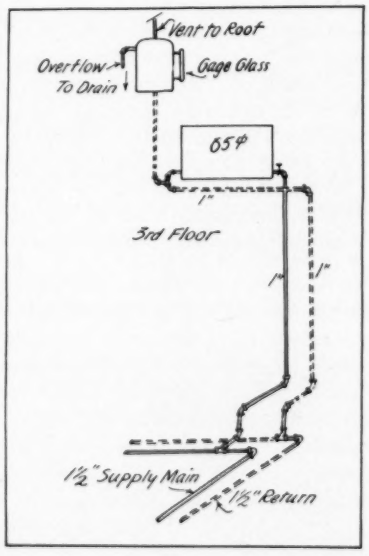


Fig. 2

1-in. riser supplying a third floor hot water radiator will supply up to 85 sq. ft. of direct radiation.

The Reader's Reply

TO THE EDITOR:

I am sorry I cannot give you any more information regarding my heating problem in response to your inquiry as to how it was taken care of.

Model "S"

is added to the line of PENBERTHY AUTOMATIC CELLAR DRAINERS

PENBERTHY PRODUCTS

THE Model "S" is a particularly valuable and timely addition to the line of Penberthy Automatic Cellar Drainers (water or steam operated). It gives the plumbing contractor a unit that is "competitive" in price but decidedly superior in quality and performance. It maintains the high Penberthy standard in every way.

The model "S" does not replace any of the existing Penberthy Automatic Cellar Drainers, but enables the trade to offer a quality article where competitive conditions make a low price necessary.

Like all other Penberthy products, the Model "S" is sold only through recognized jobbers.

RETAIL PRICE
$14.50

PENBERTHY INJECTOR COMPANY
Manufacturers of Quality Products Since 1886
Detroit, Michigan Windsor, Ontario

COPPER AND BRONZE THROUGHOUT

MODEL S
Made in 1 Size Only
Maximum Capacity
600 gallons per hour
Retail Price . . $14.50

MODEL R
Made in 2 Sizes

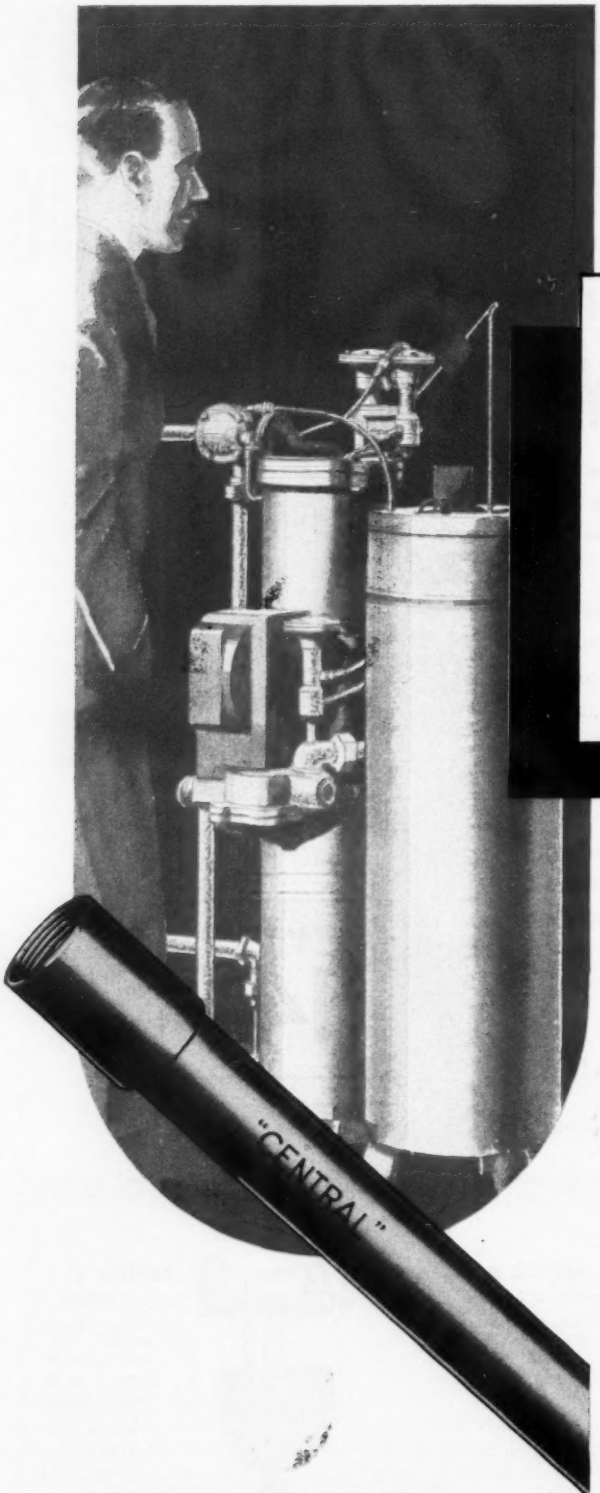
	Max. Cap. gal. per hr.	Retail Price
1R	720	$25.00
2R	1240	40.00

MODEL L
Made in 3 Sizes

	Max. Cap. gal. per hr.	Retail Price
3L	1650	$ 55.00
4L	2400	80.00
5L	3200	110.00

NRA WE DO OUR PART

PENBERTHY PUMPS REMOVE SEEPAGE WATER



CENTRAL STEEL PIPE

Over **200,000 DOMESTIC WATER SOFTENERS** *are sold every year...*

Your percentage is...?

It all depends on how much of this business you can uncover in your territory. As you know, there is a real demand for water softeners in many parts of the country where the water supply is hard and unsuitable for washing and cleansing.

As a plumbing contractor, you are in an ideal position to sell the advantages of a water softening system either as an incidental part of a complete plumbing job or as a special installation.

You will find the easy bending and threading of "Central" Steel Pipe a real help in making every installation a profitable job.

"Tested Strength in every Length"

CENTRAL TUBE COMPANY
PITTSBURGH

I have not been able to do anything because the owner of the house has been away. I have orders to open the house in the near future and I will not know until after that whether the change can be made at all owing to pipe being concealed.

Elkton, Md. A. M. H.

P. S. Expansion tank has a vent through roof.

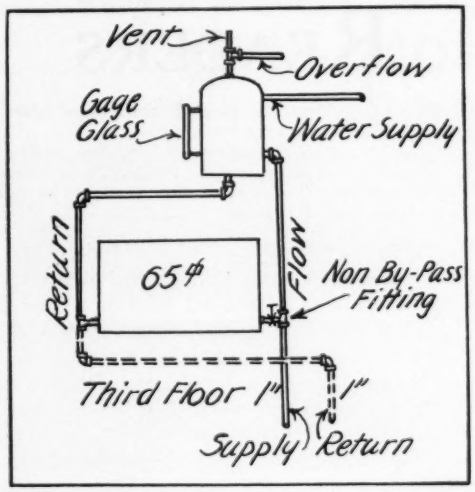


Fig. 3

2—

To the Editor:

In Fig. 4 I have illustrated a method to cut down the radiation loss on a hot water tank without changing the size of tank the idea being that it is a waste of fuel to heat water and keep it hot over long periods, when the water is not being used; this applies especially at night. All storage tanks are based on peak loads and it seems a constant and unnecessary expense to keep, say, 800 gallons of water hot when 400 gallons would amply take care of the requirements between peak loads. In the storage tank, shown in Fig. 4, heat is supplied by means of a gas water heater and the tank has a tapping at B which is 1 in. below the thermostat, this pipe being connected to the gas water heater through the ordinary hook-up. In the regular hook-up, however, a valve is placed at A, and when this valve is closed the water in the bottom of the tank lies dormant as the return circulation is drawn off only down as far as B. The valve A can be automatically controlled so as to close off between peak loads and to open in time so that a full supply of hot water may be available when the peak demand comes on.

My experiments have proven that this arrangement would cut the cost of fuel bills, and I would appreciate any comments you can make as to whether this is economical from a practical point of view.

California. M. W. D.

To the Reader:

Our correspondent certainly has evolved something that will do exactly what he says, but it is questionable if there is sufficient saving to compensate for the expense of installation, the upkeep and the depreciation, all of which items must be considered in saying whether a device is worthy of its cost or not. In the first place the water in the bottom of a horizontal tank seldom reaches a very high temperature, owing to the fact that as soon as the water temperature at the point where the thermostat is located reaches the desired temperature, the thermostat shuts off the gas heater and no further heating is done. What we mean by this is that we doubt if our correspondent would be able to keep his tank fully heated with the thermostat at the middle of the vertical height even if he wanted to. This would show that the location of the thermostat itself would help to keep the bottom of the tank cool even without the extra pipe connected in at B.

In the second place the insulation of a hot water tank, when properly done, cuts the total loss to a very small percentage of the total heat, good covering conserving about 70 per cent of the loss that would occur with a bare tank. The third point is that this economy could be made only part of the time, such as during the night, and would involve turning on the whole portion of the tank in time to heat it thoroughly so as to be ready for the peak demand just as our correspondent states. The only kind of an automatic valve control which we can conceive for such an arrangement would be a clock actuated device, which would open the valve an hour or two before peak load comes on and close the valve at some time when the peak conditions can be assuredly assumed to have ceased. Such a clock and valve arrangement would cost in the neighborhood of $60.00 and the installation including the pipe and fittings would probably bring the figure up to around $100. Interest, repairs and depreciation on this device would have to be

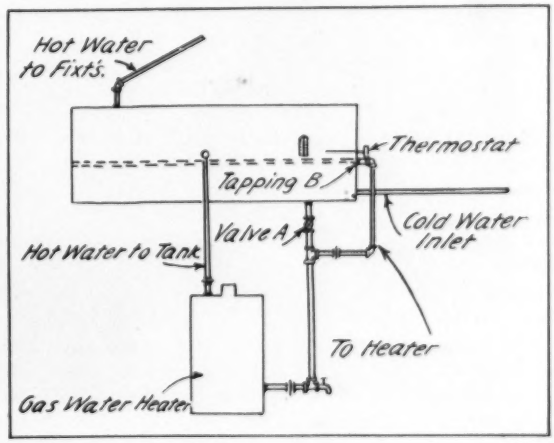


Fig. 4

charged at about $10.00 to $15.00 per year to offset this expense.

Now let us see what saving might be effected: First it will be assumed that the tank 36 in. in diameter and

72 in. long with a storage capacity of about 300 gallons. The outside surface on this tank will be about 7 sq. ft. for each head, and 60 sq. ft. for the shell, in round numbers making about 74 sq. ft. of outside surface. Under ordinary conditions the temperature in the tank will be assumed to be about 150 deg. Fahr. at the top and 100 deg. Fahr. at the bottom or an average temperature of 125 Fahr.; if the surrounding room temperature is 70 deg. Fahr. (usually such tanks are in the boiler room where the surrounding temperature is higher and in summer the surrounding temperature may be anything up to nearly 100 deg. Fahr.) then the average temperature difference will be 125 deg. Fahr.—70 deg. Fahr. or 55 Fahr. The heat emission from an orinary hot water radiator is about 1.5 Btu. per degree per hr., per sq. ft., and it may be assumed that the tank would lose heat in somewhat the same ratio so that for an average temperature difference of 55 deg. Fahr. the heat loss on each sq. ft. of bare surface per hr. would be 55 by 1.5 or about 83 Btu.

If the tank is covered with a good grade of covering, 70 per cent of this loss will be saved and the transmission will be only about 83 Btu. by 30 per cent or 25 Btu. per sq. ft., per hr. With 74 sq. ft. of surface on the tank the total loss per hour will be 25 Btu. by 74 or 1850 Btu. per hr. In one day the loss will be 24 times this or 44,400 Btu.

If it assumed that with the new connection all of the loss in the bottom half of the tank can be eliminated then the top half of the tank will be the only surface radiating heat and the average temperature of the top half will be half way between 150 deg. Fahr. and 125 deg. Fahr. (taking the temperatures in this section the same as assumed for the tank previously); then with 138 deg. Fahr. average temperature and 70 deg. Fahr. room temperature, the temperature difference will be 138 deg. Fahr.—70 deg. Fahr. or 68 Fahr.; the radiation per sq. ft., per hour, will be 1.5 Btu. by 68 Fahr. or 102 Btu., and for half of the tank surface will be 102 Btu. by 74/2 or 3811 Btu. per hr. With covering of 70 per cent efficiency this loss drops to 3811 Btu. by 30 per cent or 1143 Btu. per hr.

FIGURING THE SAVING

But some part of the day the tank must have valve A opened and must be entirely heated to carry the peak load; if this is assumed as about 4 hours the loss of 1143 Btu. per hr., will only be obtained for 20 hrs., per day or 1143 Btu. by 20 which gives 22,860 Btu. for the time when the valve A is open and, during the other 4 hrs., or 1/6 of the day, the loss will be 1/6 of 44,400 Btu. for the tank entirely heated which is 7,400 Btu. additional making the total daily loss under our correspondent's suggestion of 22,860 Btu. plus 7,400 Btu. or 30,260 Btu. per day. The saving then is 44,400 Btu. —30,260 Btu. which is 14,140 Btu. or approximately 14,000 Btu. per day. If the gas heater has an efficiency of 80 per cent the amount of gas saved in Btu. will be 14,000 Btu./0.80 or 17,500 Btu. and with 540 Btu. in the gas this will mean about 32½ cubic feet of gas. In the course of a year the gas saving would be 32½ by 365 days or 11,862 cu. ft. If gas is worth $1.00 per 1,000 cubic feet the saving in dollars will approximate $11.86 or a trifle less than the carrying charge on the equipment, whcih previously was stated to be between $10.00 and $15.00 or probably about $12.50. This demonstrates that while there is a saving to be made, it is so small that the expense of such an installation would not be justified except, perhaps, on very large tanks say of 1,000 gallons or over.

Questions For READERS

The following question was asked in the August issue, and the following answer is by a reader:

One display at the Century of Progress Exposition shows a kettle of liquid air boiling on a cake of ice. How can this be explained?

The reason the phenomenon of liquid air boiling on a cake of ice is so remarkable to the casual observer is that boiling commonly is associated with heat and ice is thought of as representing the other extreme, or cold. Heat, as we know it is purely relative. As a matter of fact, absolute zero is 459.6 deg. Fahr. below zero on the Fahrenheit scale. It is 491.6 deg. Fahr. below the Fahrenheit temperature of melting ice. In addition, it is not understood generally just what boiling is, even though the evidences of it, such as the production of steam and bubbling, are well known. The boiling point of a liquid is the temperature at which its saturated vapor pressure is equal to the atmospheric pressure on the liquid surface. At this temperature, bubbles of vapor will form in the liquid and escape through the surface, and this formation in the liquid and escape of vapor bubbles is called boiling. From this, it is seen that there is more to the subject of boiling than the temperature of 212 deg. Fahr. which usually is thought of in connection with it. Liquid air boils at a temperature of minus 317.6 deg. Fahr. One extreme opposite that of boiling liquid air is the boiling of mercury which must be raised to a temperature of 674.6 deg. Fahr. before this phenomenon occurs. In addition, the boiling point of iron, which we are accustomed to seeing in the solid state, is 4,442 deg. Fahr.

When a kettle of liquid air is placed on a cake of ice, it comes in contact with a substance which is at a temperature of 32 deg. Fahr. Since liquid air has a temperature of minus 317.6 deg. Fahr. this means that there is a temperature difference between the liquid air and the ice of 317.6 plus 32 or 349.6 degrees. Obviously, the heat in the ice travels to the colder substance, which in this case is the liquid air. In lowering the temperature of the ice below 32 deg. Fahr. heat is absorbed by the liquid air with the result that the temperature of the liquid air is raised to the boiling point and further absorption of heat causes boiling.

How Would You Answer This Question?

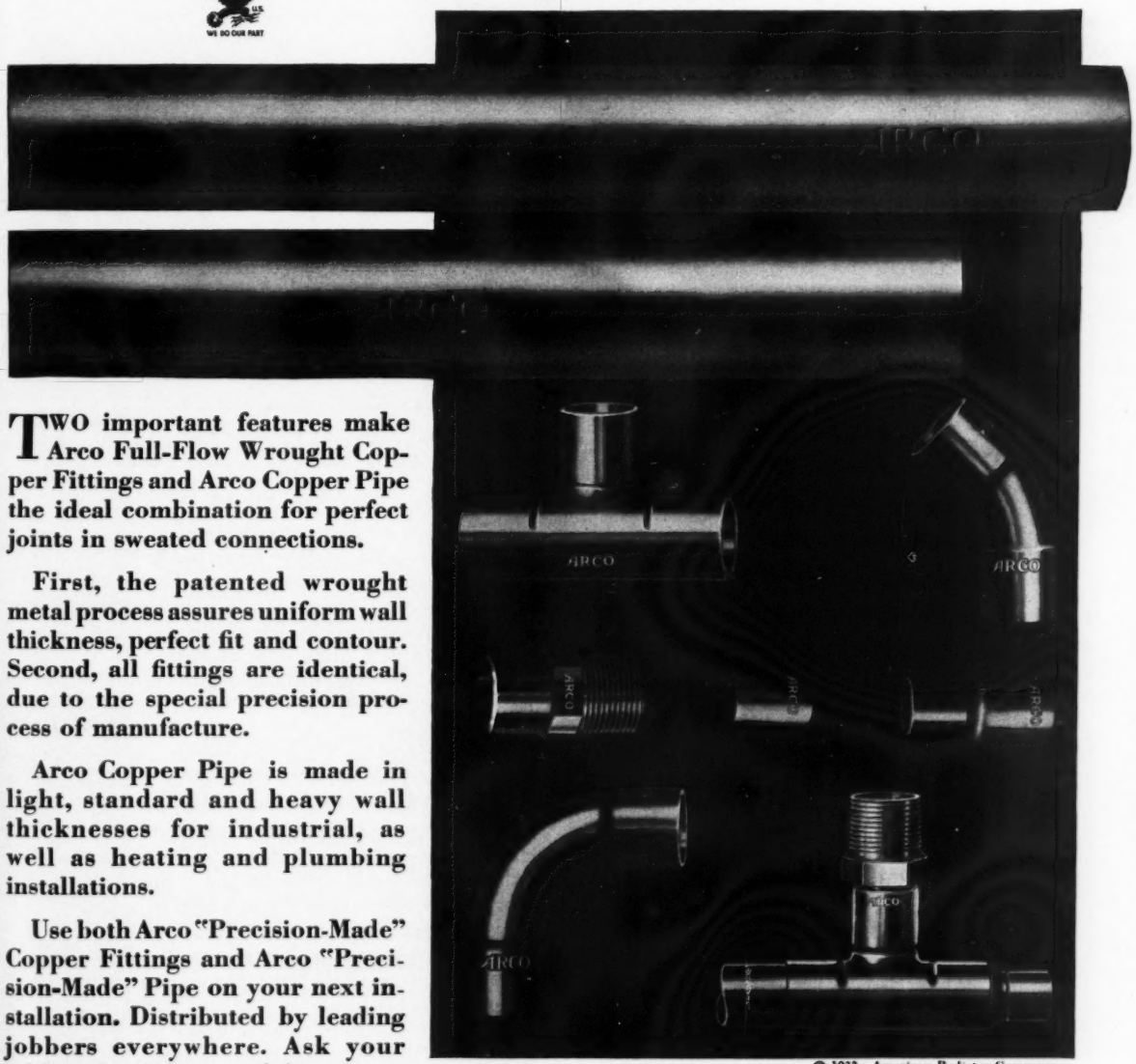
How would you test, in a simple way, an air conditioning system to determine if filters are removing the dust from the air satisfactorily?

Answers based upon your experience, suitable, will be paid for and published in the December issue.

ARCO *Full-Flow*

WROUGHT COPPER FITTINGS AND COPPER PIPE

NRA MEMBER U.S. WE DO OUR PART



TWO important features make Arco Full-Flow Wrought Copper Fittings and Arco Copper Pipe the ideal combination for perfect joints in sweated connections.

First, the patented wrought metal process assures uniform wall thickness, perfect fit and contour. Second, all fittings are identical, due to the special precision process of manufacture.

Arco Copper Pipe is made in light, standard and heavy wall thicknesses for industrial, as well as heating and plumbing installations.

Use both Arco "Precision-Made" Copper Fittings and Arco "Precision-Made" Pipe on your next installation. Distributed by leading jobbers everywhere. Ask your jobber for prices and literature, or write direct.

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Patent Number 1850049—Others Pending

AMERICAN RADIATOR COMPANY

40 WEST 40th STREET, NEW YORK, N. Y.

Division of AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

Fair—

(Continued from page 39)

ferred to prospect cards which are made out after interviews with those visitors who show an unusual amount of interest.

They report as follows:

"Out of 1500 prospect cards turned in from the Fair exhibit of Crane Co. 1,032 were interested in plumbing, heating, or related products. Classified as to nature, the cards showed that people are most interested in making certain small improvements.

"Of the 1,032, three hundred thirty-three, or about 1/3, expressed interest in accessories of some sort. In this group we include those who want to install a shower, new faucets, put in an automatic water heater, etc.

REMODELING PLAYS BIG PART

"Remodeling, according to our returns will play a larger part than new building. Two hundred ninety-eight of the prospects desire or intend to replace their old plumbing fixtures with new ones. This figure includes people who want to change their bathroom or kitchen or bath. In third place we have the group who intend to build new homes, with a total of 202. Heating contractors can get encouragement from the fact that 102 people requested further information or estimates on new heating plants. The extra bathroom comes in for its share of consideration with 97 prospects.

"Perhaps these figures appear insignificant when the possible business represented is spread over the United States, but the reader should not be discouraged, because the total number of prospects covered in this story cover only 1/5 of 1 per cent of the visitors to this one exhibit during June, July and August. The total number of visitors in our exhibit during these three months approximated 500,000 and it is reasonable to assume that they were really interested in plumbing and heating materials. Unquestionably a lot of business will develop later on, because of ideas or suggestions received.

"All of the cards received from our exhibit were referred to Crane branches throughout the country to be followed up by our representatives. To date 245 have been reported back to us and of this number 31 have been turned into sales amounting to about $10,000. This figure represents consumer prices only, it does not include installation charges. It covers all sales of plumbing and heating from a $3,200 De Luxe bathroom down to a $3 shower head. In addition to the 31 sales, jobs still pending, with real hope of their maturing totaled 54. If only 50 per cent of these are turned into sales, we have 58 sales out of 245 prospects or about 25 per cent. Not bad under any condition.

"To sum up impressions and returns we find that the outlook for the future is really encouraging. Contractors, however, will have to go after this business with real energy. They should put earnest endeavor behind their efforts to pick up the small business as it is here that a real market exists. As shown above, 1/3 of the prospects developed are interested in new faucets, showers, shower curtains, closet seats, water heaters, water systems, etc. Individually these sales don't seem so great, but in the aggregate they represent nice volume.

"Publicity and propaganda for remodeling work is beginning to bear fruit and the man who sincerely goes after this work will be well satisfied by the returns on his time and effort."

Water Hammer—

(Continued from page 42)

At the Croton Lake of the New York City water supply where large volumes of water are pumped from the Croton Lake into the Catskill Aqueduct, water hammer is very troublesome and has been reduced to a considerable extent by placing relief valves on the discharge

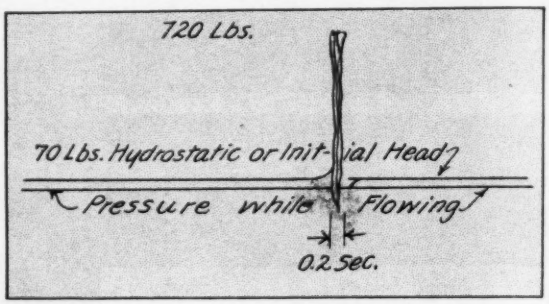


Fig. 6—Diagram of water hammer produced by shutting of a 3-in. valve on the supply to washing machine in regular service in a laundry

mains. This could be done very readily in this case for the reason that there is ample space for the relief valves to discharge in, whereas, in a plumbing system of a building, taking care of the discharge from the relief valves would be a more difficult matter.

I received very useful and helpful information from Mr. Jere L. Murphy, of New York City, on the subject of air chambers used in his work. He told me that the principal trouble with an air chamber was the pet cock in the top. This pet cock is just as necessary as the one in the bottom of the chamber when it comes to draining it, and the chamber must be drained at regular intervals depending on the amount of air in the water, its present and past pressures and temperatures.

Mr. Murphy explained that while it is easy to get a valve that will prevent water from passing through it, air will get through most any valve in time. This condition, therefore, ruined the purpose for which the air chamber was designed.

For this reason we place the upper pet cock as shown in Fig. 4 where it is continuously below the water line in the chamber when it is in service. Here, air cannot pass through the pet cock as air cannot come in contact with it.

We would recommend placing the air chamber between the point where the water hammer is produced and the lines to be protected. While this is not absolutely necessary, it furnishes the greatest and most efficient protection as shown by the diagrams. If this location cannot be obtained, come as near to it as you can.

Automatic Heat *and* Air Conditioning Section

All over the country the "Battle of Fuels" is on—coal-gas-oil. While battling one another, they are all fighting for the common cause of "Automatic Heat." Every dealer, every manufacturer, while resolutely going after business on the fuel and the product he prefers, should welcome the fact that a competitor with another fuel and another type of product is carrying into homes of his prospects the same inspiring message of automatic heat in every American home.

In tune with that common goal, dealers in automatic heat will find a full diet of helpful sales and engineering features in this issue—a stoker plant in one case, an oil service in another and complete gas and air conditioning installations in others. An unusual chart is offered for quick determination of costs with any fuel.

A section for dealers —and for dealers in every section.

You Can Have

Heat and hot water at less than the cost of heating alone

TRIPLE DUTY HEATER

3 exclusive features..

Hot Water

••• The same boiler that heats the home heats the domestic hot water supply automatically — SUMMER AND WINTER.

Rapid Heating

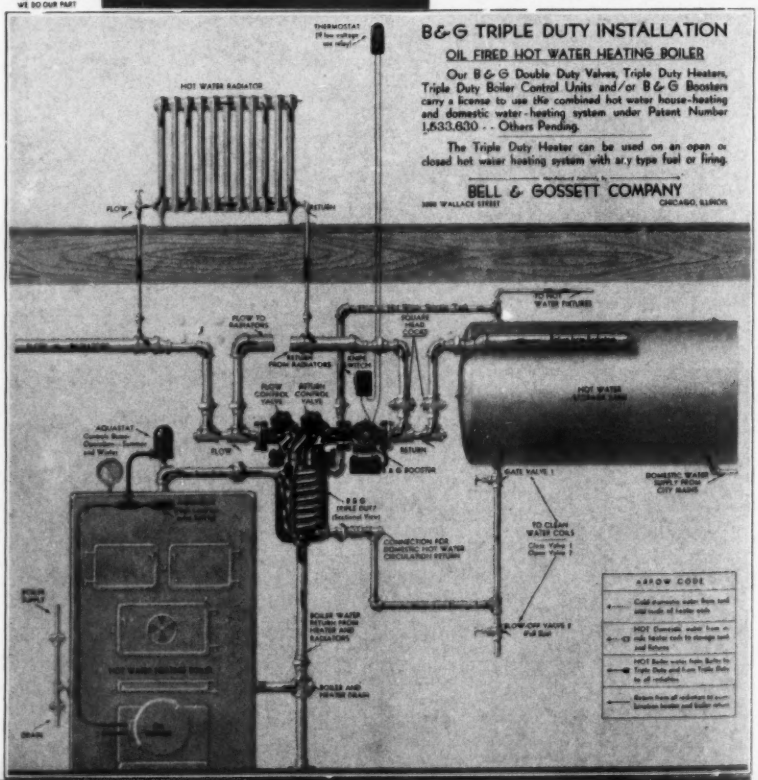
••• Electrically operated circulation Booster provides the quickest possible heat to all radiators. Uses smaller pipe sizes – saving considerable in labor and material.

Heat Control

••• Positive control of flow and return circulation, prevents reverse circulation and "overshooting" of room temperature. Maintains uniform room temperature throughout the heating season.

•••

Patent numbers 1,533,630—1,925,398 and other patents pending.


B&G TRIPLE DUTY INSTALLATION
OIL FIRED HOT WATER HEATING BOILER
Our B & G Double Duty Valves, Triple Duty Heaters, Triple Duty Boiler Control Units and/or B & G Boosters carry a license to use the combined hot water house-heating and domestic water-heating system under Patent Number 1,533,630 - - Others Pending.
The Triple Duty Heater can be used on an open or closed hot water heating system with any type fuel or firing.
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HOT WATER RADIATOR
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RETURN
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GATE VALVE 1
DOMESTIC WATER SUPPLY FROM CITY MAINS
TO CLEAN WATER COILS
BOILER WATER RETURN FROM HEATER AND RADIATORS
BOILER AND HEATER DRAIN
DRAIN
ARROW CODE

BELL & GOSSETT COMPANY
3000 Wallace Street Chicago, Illinois

KAINER GOVERNORS C-3 & B-2

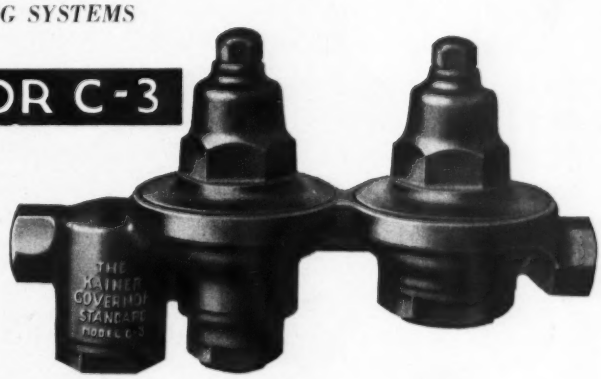
- are MONEY SAVERS

for the Home Owner

that Home Owners *Will Buy*

TO OBTAIN FUEL ECONOMIES AND AUTOMATIC WATER CONTROL ON HOT WATER HEATING SYSTEMS

STANDARD GOVERNOR C-3



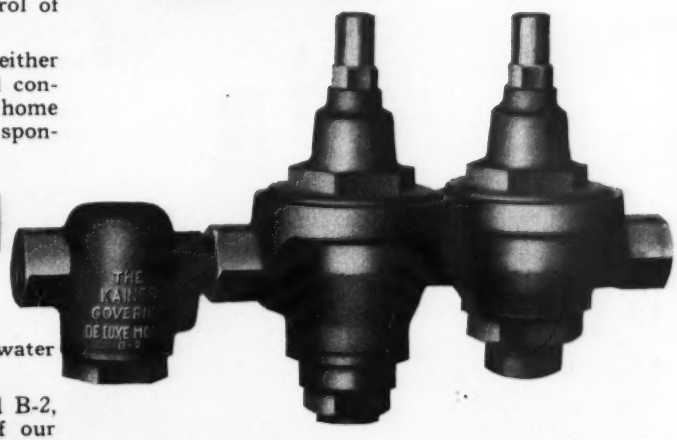
The Kainer Governor STANDARD model C-3 is exceptionally popular in the heating field. A splendid all-round fast selling item which because of a slightly simplified construction carries a somewhat lower list price without sacrificing sturdiness or the reliable accurate performance so essential in a heating specialty of its kind.

Easily installed it provides a fully closed hot water system with AUTOMATIC control of the hot water.

Periodic inspection without disturbing either the unit or its adjustments is a decided convenience to both heating contractor and home owner, a feature adopted, created and sponsored by KAINER.

DE LUXE GOVERNOR

MODEL B-2



Choosing the RIGHT control for the hot water plant IS IMPORTANT.

The Kainer Governor DE LUXE model B-2, the LEADING unit and PIONEER of our entire line has an enviable "three point" record. First, thousands of residentials are DE LUXE equipped. Jobbers cannot keep them on their shelves because of popular demand and contractors everywhere are eager to install this profit producing, time proven DE LUXE unit which embodies many additional improvements for safety, accessibility and the most sound engineering principles we have been able to employ. KAINER PRODUCTS are the outgrowth of twenty years of manufacturing experience. When ordering specify Kainer GOVERNOR DE LUXE model B-2.

Write Us Today!
for our
10 POINT STORY & PRICE LIST

KAINER & COMPANY -- 761 Mather St. -- CHICAGO

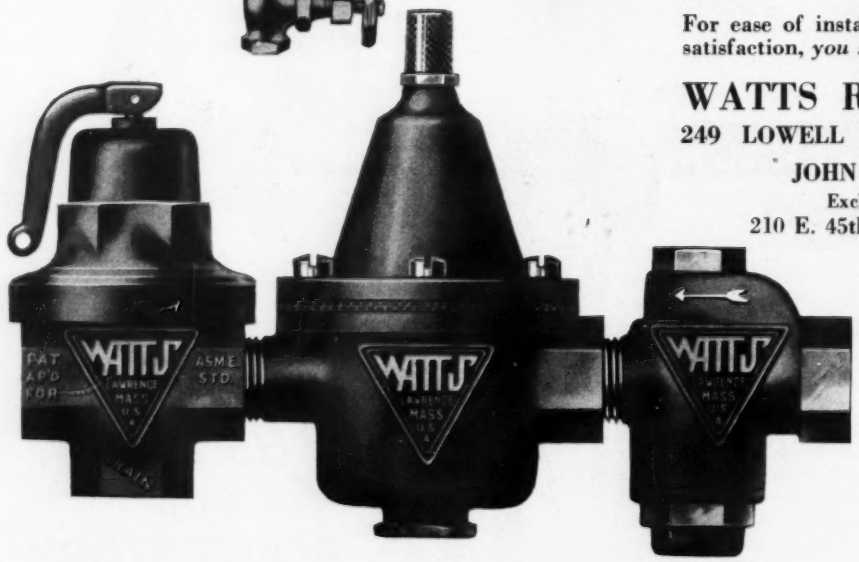
TWO big reasons why you buy WATTS

With the heating season at hand, the WATTS Line immediately takes on an increased importance to the heating man. For 59 years the name WATTS has stood for the *best* in heating specialties.

To be outstanding in service, year in and year out for such a long time, the line must be more than ordinary. It must meet the requirements of the heating man so as to merit continued demand. How well the WATTS Line has done that is attested to by those legions of heating men who have stood by the name WATTS year in and year out.

Today heat of the automatic type, oil burner, gas or stoker installations, present a waiting market for the Watts No. 60 Boiler Safety. Automatic heat reaches its greatest efficiency when equipped with a Watts Safety. With the Watts No. 60 you eliminate the human element incidentally eliminating costly accidents. Can be equipped with low water and/or pressure cut off switch, also overflow valve. For the heating system that is slow and sluggish, the Watts No. 38 Hot Water Heating Unit meets every requirement. This unit automatically keeps the system full of water at all times. Prevents excessive pressures. Speeds up the circulation and saves coal. The entire unit is listed as Standard by the Underwriters' Laboratories.

For ease of installation, profits and customer satisfaction, *you should buy Watts.*



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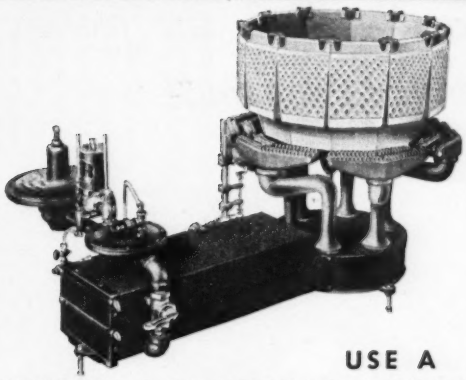
FITS THE BOILER



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BRYANT CONVERSION BURNER
ON YOUR NEXT CONVERSION JOB

YOU *will be delighted with the —Exact adjustment of burners to the firepot wall—Speed and simplicity of installation*

YOUR CUSTOMER *will be delighted with the—Efficient appearance—Satisfactory operation — Low operating cost*

SWIVEL FIT ★ BURNERS ★

Made in 5 sizes, for round firepots. Swivel-mounting enables every burner to be snugly adjusted for delivering maximum heat to firepot wall.

SALES HELPS

Behind Bryant Conversion Burners, waiting to help you, is the same organization of salesmen, engineers, and merchandising men who have helped make Bryant the nationally-famous name in gas heating.

NON-BAFFLE ★ RADIANTS ★

Bryant radiants are not baffles. Their whole purpose is to radiate heat to the firepot wall.

EASY INSTALLATIONS

Installation is simple, you can estimate your costs accurately, keep to schedule and make profits.

Let the Pup be Your Furnace Man

ECONOMY OF ★ OPERATION ★

The location of burners and design of radiants insures the most effective application of heat to the heating plant. Every square inch of heating surface is utilized.

SOUND ENGINEERING

Bryant Conversion Burners are a new product of the famous Bryant Research Laboratories which have pioneered the majority of outstanding improvements in gas househeating.

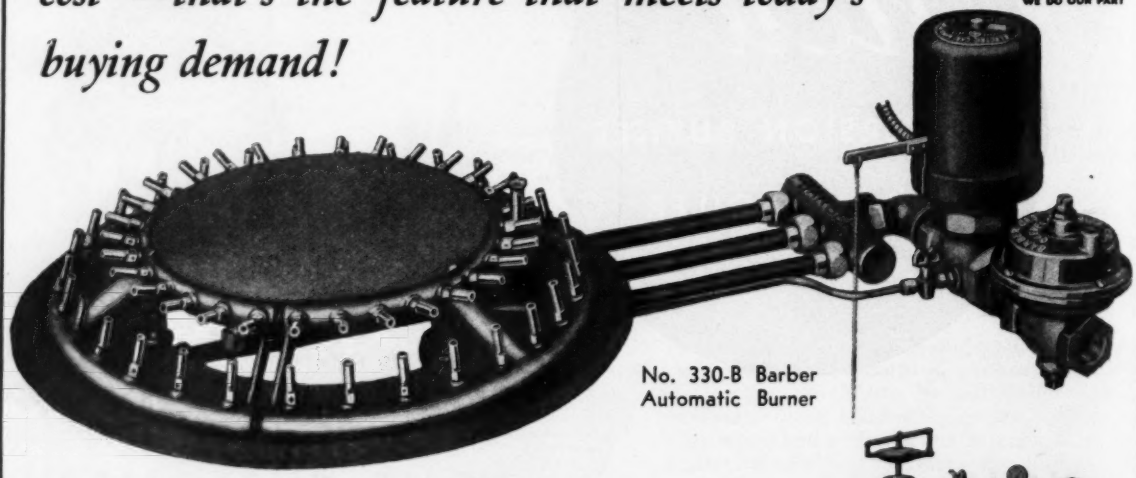
THE BRYANT HEATER COMPANY

★ *Makers of a complete line of gas boilers, warm air furnaces, conversion burners and air-conditioning equipment which enable you to handle any inquiry* ★

17840 ST. CLAIR AVENUE ★ ★ ★ CLEVELAND, OHIO

"BARBER BURNERS *are low in operating cost"—that's the feature that meets today's buying demand!*

NRA MEMBER U.S. WE DO OUR PART



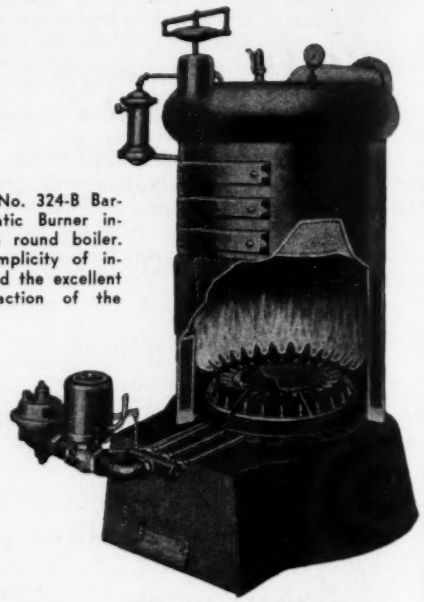
No. 330-B Barber Automatic Burner

BARBER JET GAS BURNERS with over fifteen years' proven experience have been so improved and advanced in mechanical construction that today, LOW OPERATING COST is the selling theme of all BARBER Dealers.

BARBER BURNERS are low in first cost, low in operating cost, and so developed mechanically that they have reached the highest point of safety, economy and efficiency.

BARBER JET GAS BURNERS will convert any hot water, steam or furnace system into a clean, even, economical and completely automatic heater. Installation is simple and inexpensive, owing to the fact that nothing in the existing system must be replaced.

You merely send us the NAME of the MANUFACTURER, the TRADE NAME and the NUMBER of the BOILER or FURNACE in the home of your customer. We then can forward you a TAILOR-MADE Barber Automatic Conversion Burner that will give your customer a 100% installation of low cost automatic heat.



Illustrating No. 324-B Barber Automatic Burner installed in a round boiler. Note its simplicity of installation and the excellent scrubbing action of the flame.

TODAY is the time to cash in on Gas Conversion Jobs

Write us today for our NEW catalog and NEW revised attractive discounts. Let us tell you how we assist the Dealer with literature and dealer co-operation that will enable you to capitalize on the demand for BARBER Automatic Heat.

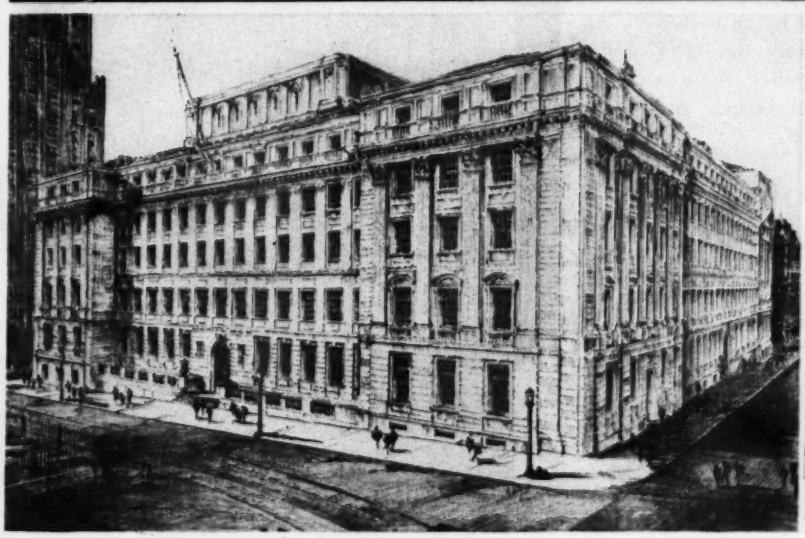
THE BARBER GAS BURNER COMPANY

3702 SUPERIOR AVE. :: :: :: :: :: :: :: CLEVELAND, OHIO

The
U. S. FOREST
SERVICE BUILDING
Ogden, Utah

Hodgson & McClenahan
Architects

MODUTROL SYSTEM EQUIPPED



U. S. POST OFFICE
Baltimore, Maryland

James A. Wetmore
Supervising Architect

U. S. Government,
Architect

THE U. S. Forest Service Building, Ogden, Utah, and the U. S. Post Office, Baltimore, are accurately and efficiently controlled by the Modutrol System of Automatic Control . . . The Modutrol System meets all heating and air conditioning requirements, in all buildings, large or small. It is tailor made for every installation, with its various controls completely unified into one harmonious system. Each unit is either electrically operated or self contained, making the Modutrol System equally adaptable to existing and new buildings . . . Minneapolis-Honeywell Regulator Company, 2801 Fourth Avenue South, Minneapolis, Minnesota.

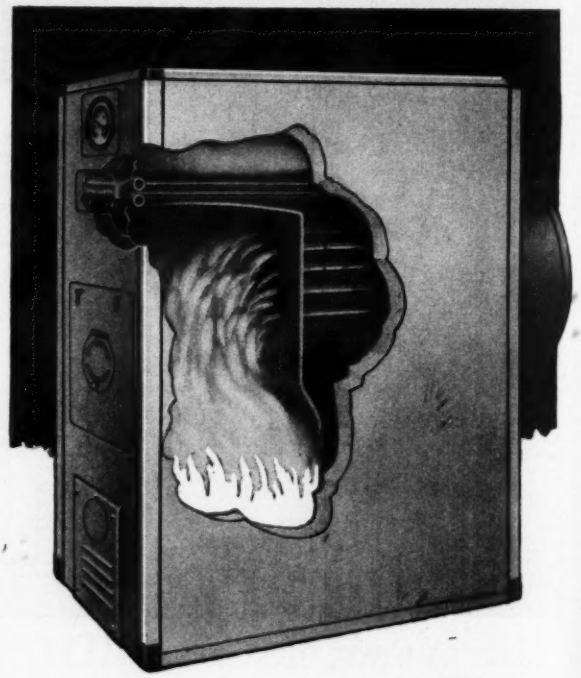
MINNEAPOLIS-HONEYWELL

Control Systems

Be prepared for any sales problem with the Fitzgibbons OIL-EIGHTY AUTOMATIC

Prospects today demand of heating equipment, services and economies unheard of a few years ago. . . . Here is a boiler that has them all . . . a boiler that, teamed up with any good oil burner, gives a compellingly convincing answer to any sales problem you may face, while providing additional and powerful sales ammunition.

Offer your prospects INSTANTANEOUS HOT WATER without a tank—STEEL BOILER PERFORMANCE—MAINTAINED ECONOMY—and a boiler built by an organization which has made nothing but steel boilers for half a century. Offer them a heating unit, consisting of your burner and the OIL-EIGHTY AUTOMATIC.



Instantaneous Hot Water

Equipped with the Fitzgibbons TANK-SAVER, the OIL-EIGHTY AUTOMATIC supplies year-round hot water *without the need of a tank.* If a tank is already in place, the Fitzgibbons TANKHEATER serves as a more efficient indirect heater. Either unit supplied to order, mounted in the boiler.

Highest Burner Efficiency

In every detail the OIL-EIGHTY AUTOMATIC is designed specifically for oil burning. Its combustion space is *right,* permitting rapid heat transfer and quick pick-up of the heating load. Its exceptional performance is aided by these exclusive features: COMBUSTROL, the automatic draft control, and THERMALIZER, which makes every square inch of heating surface work equally hard.

Steel Boiler Strength

An all-steel tubular boiler, of *special copper bearing steel,* all welded. A single unit, easy to install, corrosion-resistant, resilient, crack-proof, and cased in a beautifully enameled jacket. A long-lived unit which will give enduring satisfaction.

Get the Facts

which will put you directly in line for every boiler-burner prospect in your territory. Write *today* for BULLETIN H.

NRA MEMBER U.S. WE DO OUR PART

Fitzgibbons Boiler Company, Inc.

GENERAL OFFICES: 570 SEVENTH AVE., NEW YORK, N. Y.
Works: OSWEGO, N. Y.
BRANCHES AND REPRESENTATIVES IN PRINCIPAL CITIES

Above are reproductions of newspaper advertisements which are being used in extensive campaigns for each fuel

The Battle of the Fuels—

Sell Automatic Heat!

THE battle of the fuels is on! Up and down, and all across the country, the sales story on gas, on coal and on oil is being forcibly brought to the attention of the public as the heating season approaches.

This is a fact for which every dealer, whatever form of automatic heating he may be pushing, ought to congratulate himself. Because, every time the public is told about automatic heating with any fuel, it is primarily told about automatic heating. Hundreds of thousands of people, for example, saw the three advertisements which we have reproduced. It is true that each one of them was presenting the subject of automatic heating as made possible through one or another of the three fuels.

But the important point is that these hundreds of thousands of people were made to think about automatic heating. It isn't possible, or even probable, for any one form of automatic heating to corner the whole market; but with dealers interested in oil burners, stokers, gas boilers and burners hammering away at the public on the merits of the product they handle, the public is being given an education in the modern comfort of controlled heating and automatic fueling.

All over the country there are millions of home owners who are being bombarded with advertising literature of one kind or another, and every advertisement they see, if it does nothing else, does strengthen the desire for freedom from the drudgery of hand-firing.

This is all to the good for the dealer. Every dollar he spends, and every dollar the other fellow who is pushing some other form of automatic heating spends, has a certain value for all of them because of the educational force it is exerting.

With this in mind, we urge dealers in all forms of automatic heating to feel that he is really participating in a big drive to give the American home some form of automatic heating; and to be alert in capitalizing for the product he handles the interest from this tremendous merchandising effort going on all over the country. The alert dealer will get his share of the business and if he is frank and courageous about the situation he will know that, in the long run, he and the other dealers who are merchandising another product will enjoy a better total volume than if any one of them had a monopoly. The educational job is too big for one man to do—and even when competitive advertising does that job the advantages to every dealer must obviously be greater than any he could create for himself.

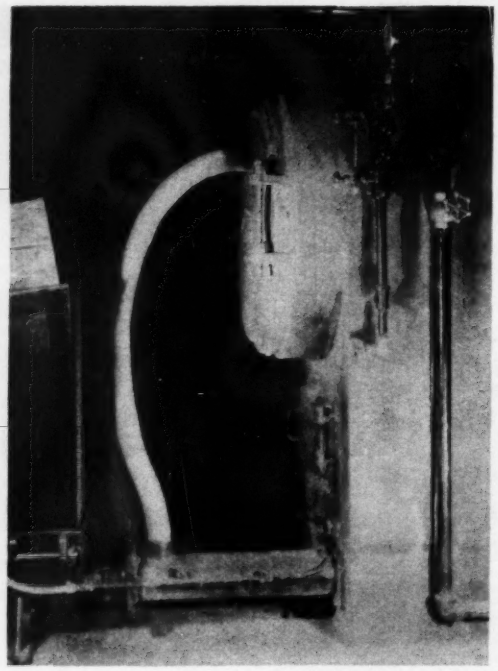


Fig. 1—Note hopper gas eliminator in connection with stoker

Sells Stoker, Boiler and Duct System for Complete Winter Comfort

By C. H. Harpst, Sec'y-Treas.,
The Hoffman & Harpst Co., Toledo, O.

LAST summer one of Toledo's prominent architects asked for bids on a large residence. He departed from the usual procedure of asking for bids on the heating system according to one specific type and design, but instead left the selection of the type, design and materials entirely to the several bidders.

In a bulletin issued prior to receiving bids he stated that: "Contractors are reminded that he (the architect) is not asking for any one type, but that he will insist on a heating and air conditioning system that is 100%, and that he will require a guarantee from the manufacturer of equipment as well as from the contractor. Price will not necessarily be a factor in selection of the successful contractor."

It must be stated here that the word air conditioning is used in a modified sense, as the

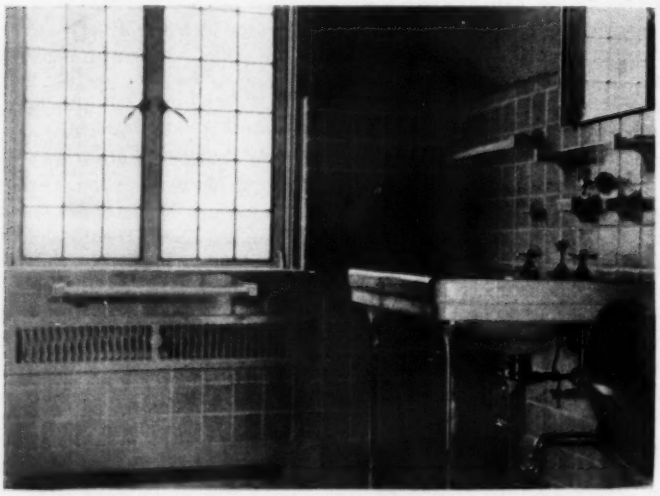


Fig. 2—Typical installation of concealed radiation in the home. Practically every window in the house has one of these units under it

Fig. 3—All bedrooms have two temperature controls. Pressing a button lowers night temperature

owner would not consider cooling, choosing to use 4-in. insulation throughout. He simply asked for air to be properly circulated, filtered and washed, with proper control of humidity during the heating season.

FACTORS PROVIDED BY SYSTEM

Realizing that the house was to be located at a point high above the river, with no intervening buildings, this company was well aware of the high west and southwest winds which prevail in this section. The choice of the type of system then was decided upon by consideration of the following:

1—Sufficient heating capacity
2—Adequate air motion
3—Proper humidity
4—Cleaning of air
5—Individual room temperature control
6—Economical operation
7—Life of system
8—Elimination of drafts
9—Quiet operation
10—Simplicity

It was concluded that the system to meet the above requirements would be a "split" type—in other words, the heat losses would be taken care of by concealing radiation under windows, and the filtering, washing and humidifying of air by means of an entirely separate system, using steam as a heating medium. No dependence whatsoever is placed on the air system for heating purposes. The owner, desiring automatic heat, decided on the use of a stoker. Fig. 1 shows the stoker with the hopper gas eliminator tube which actually removes all traces of hopper gas. The stoker is operated by a pressurestat which maintains 1 lb. pressure at all times. This makes steam instantly available to any room in which the thermostat is calling for heat.

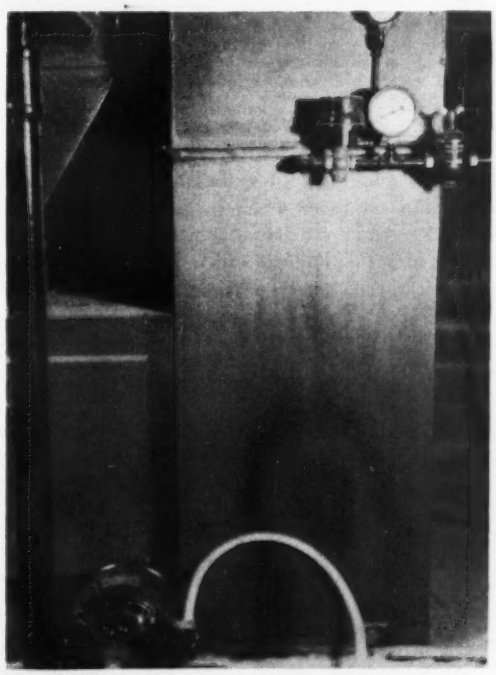


Fig. 5—A section of the air washer, which contains a self-cleaning filter

Fig. 2 shows a view of a concealed radiator, which is typical of all rooms, i. e., especial care was used to choose sizes that would sweep the entire glass surface with heated air. Practically every window in the build-

Fig. 4—Duct sizes were figured generously because a rigid guarantee was given

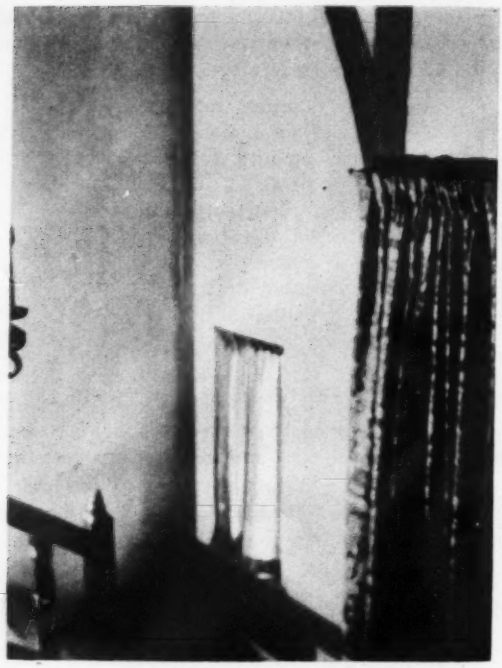


Fig. 6—A view of the "great hall" which has a 32-ft. ceiling. Distribution of air in this space is satisfactory and no trouble was encountered from stratification

ing has a unit beneath it. This not only takes care of heat loss through windows, but also tends to eliminate condensation on them when proper humidity is maintained. Recent tests have shown that 42% relative humidity was maintained with outside temperature at 15 deg. without any condensation appearing on windows.

CONTROLLING THE TEMPERATURE

The particular temperature control system was selected because of the fact that "floating control" was desired. In the guarantee required by the owner a temperature variation of not more than 1 degree, plus or minus of the setting on the thermostat, was demanded. Tests show that the guarantee will easily be fulfilled, as the maximum variation noted has been 1 degree. The temperature of the air introduced into the rooms has been held to 68 deg., this being done to prevent overheating in mild weather. All bedrooms have two temperature controls; that is, at night the pushing of a button lowers the temperature to 50 deg. See Fig. 3.

Fig. 5 shows a section of the air washer which contains a self-cleaning filter, the sprays from the washer playing directly on the filter, which is thereby constantly cleaned. This equipment represents the latest development of the manufacturer. The design of the registers is in keeping with the architecture of the house, the free area of this type being greatly increased and uniform distribution of air improved.

The system of air distribution had a calculated static pressure of ½-in. W.G., but Fig. 4 shows why the resistance proved to be much less. The installation of duct work was carefully supervised, and very generous curves were insisted upon by the company, particularly in view of the fact that its own design was being used, and that the guarantee it submitted was most rigid. It was found that by speeding the fan unit (by means of the variable speed control on the motor) the capacity of the unit was practically doubled without overheating the motor. Furthermore, the amount of heating surface installed permits maximum final temperatures of air of 91 deg., which means that with unusually low temperatures of 12 to 15 below zero, the operator can boost house temperatures to 70 very easily.

The humidity control is located in the living room, compressed air operating the water valve controlling the sprays.

In Fig. 6 a section of the great hall is shown, this having a ceiling height of 32 ft. It was feared in the original design that a pocket of heat would form in the balcony due to stratification. Due to the very good air motion by the fan system a very pleasant surprise occurred when it was found that only one degree variation existed between floor and balcony. It must be further stated that due to the fact that register velocities were kept below 200 F.P.M. no drafts whatsoever have been noticed.

HEAT FOR GARAGE AND WATER

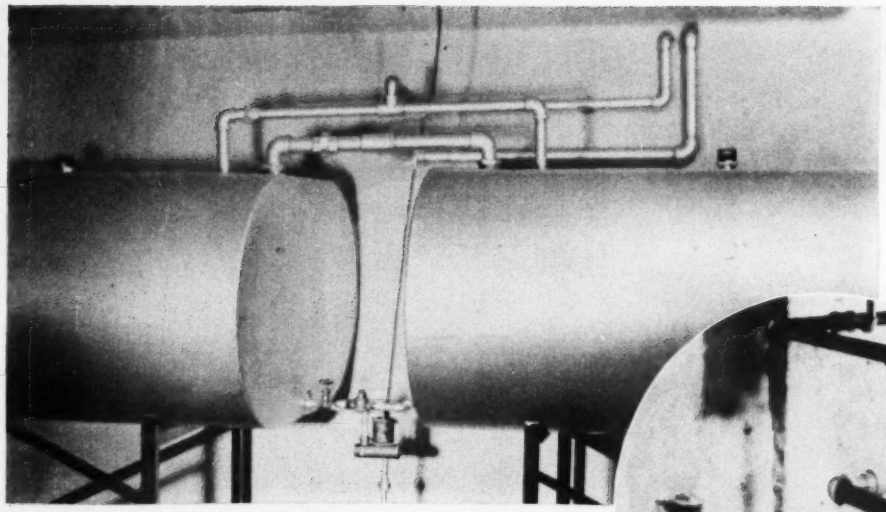
Reference to Fig. 7 shows the distance between the garage and house. The architect originally called for a separate warm air system in the garage, but the company pointed out that this would be unnecessary, as the house boiler could be used for both buildings. Steam is run underground to the garage; temperature control is maintained by placing control valve in steam line at garage ceiling with thermostat in living room overhead. In addition to heating both house and garage, the boiler is also used to heat domestic water by means of an indirect heater coil with a 250-gal. tank. Thus the operation of the stoker takes care of the heating and air conditioning of the house, the heating of the garage, and the heating of water. This makes the task of the caretaker relatively simple, as all other controls are entirely automatic.

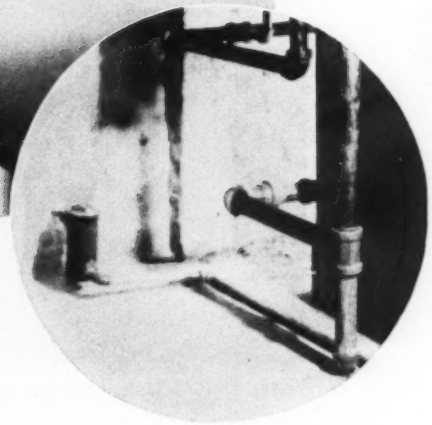
Traps for concealed radiators are readily accessible, as baseboards are removable. With the use of the vacuum pump positive and quick circulation is assured.

The view of the house shown in Fig. 7 will give an idea of the size of the building. Owing to the structural features, it would have been exceedingly difficult to find space to install large enough ducts to heat the building with a straight warm air system.

(Continued on page 78)

Fig. 7—Note size of house, and distance to garage, which is heated by the house system. Steam is carried underground





At the left are two oil storage tanks. In the insert is shown the supplementary oil reservoir referred to in this article

After the oil burner had been operating, it would start once but it would stop shortly until

Oil Flow Problem Was Solved

By Wm. W. Stevens

HERE is a problem that presented a real difficulty until it was solved. After the installation was made, the oil burner was started and everything was in perfect working order according to all indications. It was decided to test the controls. As a result, the burner was left operating until the device regulating the temperature of the water registered 180 deg. Fahr. and turned off the heat. Obviously, this was a hot water job although this fact had nothing to do with the problem under consideration. Later, when the aquastat mechanism dropped below its low limit setting, the burner started again but it only operated for a short interval. Everything was as it had been when the burner operated the first time in bringing the boiler water up to the desired temperature and those on the job were at a loss to understand what could be wrong. The one clue that existed and that finally led to the solution of the problem was that the oil supply seemed to be deficient. A further investigation disclosed that there was no oil in the reservoir of the oil burner. This was corrected and the burner was started. Again, it operated and the foregoing was repeated. The analysis then progressed to the oil piping and the oil storage tanks. There was sufficient oil in the tanks and there was no question about the piping being free because the burner had operated on its initial run without interruption. It was known that the tanks were on a level considerably lower than the burner and at some distance from it. Going on the assumption that everything about the installation was as it should be except that it required too long a time to pump oil up to the burner—longer than the normal supply of fuel in the reservoir would last—it was decided to place an additional reservoir in the oil line. This is illustrated in the insert at the top of this page. An ordinary drum trap was used. When both the oil burner and this reservoir were filled with oil, the burner started by means of the automatic control equipment and since then no trouble has been experienced.

If it is desired to prevent oil from standing in the supply line from the reservoir to the burner, then the piping might be installed to come out of the bottom of the trap and rise immediately so as to be above the top of the trap.

Along this line, an inquiry which was received from a reader located in New York is of considerable interest. He asked, "What would you consider the right size for copper tubing to be used between an oil storage tank and an oil burner when the tank is located about fifty feet from the boiler?" Recommendations are that for runs of tubing up to 75 ft. in length and having a 5 to 6 ft. drop between the boiler and the tank, $\frac{3}{8}$-in. by $\frac{1}{2}$-in. tubing should be used. This, of course, refers to tubing with an inside diameter of $\frac{3}{8}$-in. and an outside diameter of $\frac{1}{2}$-in. For the same length of run where the drop is from 6 to 12 ft., tubing $\frac{1}{2}$-in. by $\frac{5}{8}$-in. is recommended for the service.

Fig. 1—Here is the basement showing the various gas appliances. The air conditioning unit is in the center

Gas Used for Cooling

Building Construction Plays

TWO purposes were behind the building of a completely air conditioned home, just recently finished in Philadelphia and opened for public exhibition. First, the idea was to demonstrate the practical advantages of air conditioning for the average Philadelphia home, and, second, to overcome the idea that air conditioning inevitably produces a chilly, clammy feeling. The building is designed to be completely cooled in summer and heated in winter, by gas.

To date, it has been impossible to determine what conditions can be maintained in this particular structure, through actual operation, because the house has been subjected to more than normal occupancy as a result of the demonstration period.

One of the most important factors in the air conditioning of any building is the construction of the enclosing walls and ceilings. In this Philadelphia home, special provisions were made to reduce heat transfer to a minimum, both from the standpoint of the building absorbing heat from the outside in the summer and giving off heat from the inside during the winter. For instance, one new feature is the use of single window sash having two panes of glass separated by 1⅛ in. of air space. Each sash is separate and removable from the other, yet the combination has the convenience and appearance of a single window. It is claimed that this is the first installation of this kind in the country.

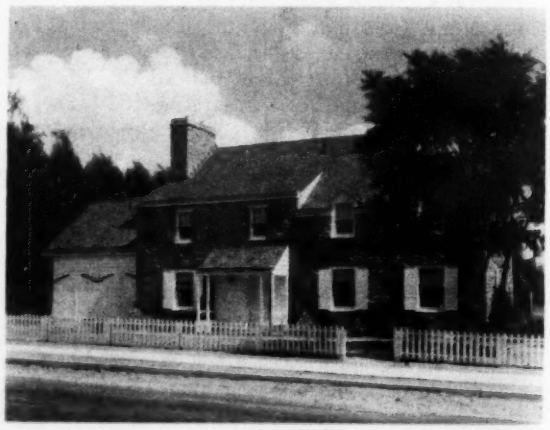


Fig. 2—Eighteen-inch walls lined with 1½ in. of cork keeps heat out of this home in summer

Besides effecting economies in heating and cooling, the double window is designed to prevent fogging of the glass in cold weather when the inside humidity is maintained at the desired point. The inside sash is removable for cleaning purposes. Drafts around the windows were designed to be eliminated by the employment of

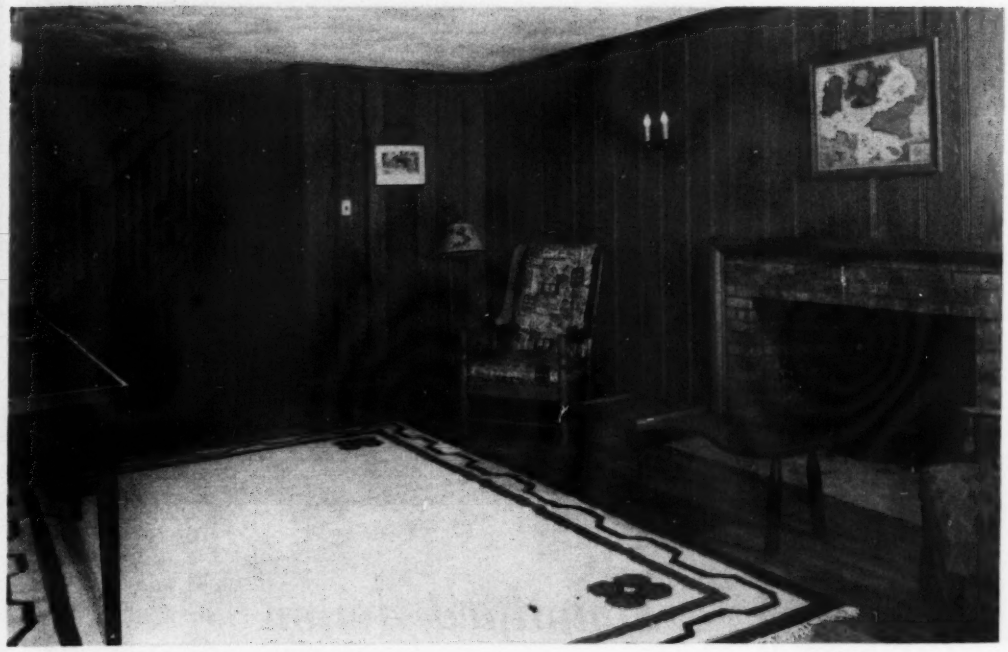


Fig. 3—This recreation room in the basement was made possible by the use of modern equipment

and Heating Model Home

Big Part in Air Conditioning

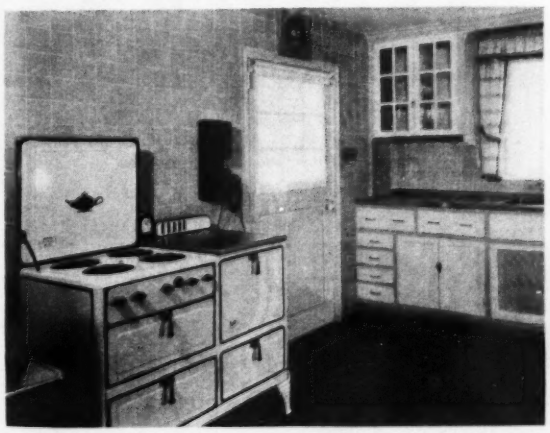


Fig. 4—In addition to being air conditioned, this kitchen is ventilated by the fan over the door

special construction and weatherproofing. All of the window and door frames have been treated with a caulking of insulating material.

An additional construction feature which was influenced by the application of air conditioning equipment was the insulation of the walls. The house was constructed of 18 in. of native stone, having one inch of air space and 1½ in. of cork. The plaster was applied next to the cork.

The air conditioning is accomplished by a gas-operated unit in the basement which automatically filters, de-humidifies, cools and distributes the air throughout the house by means of a system of inconspicuous ducts. In summer the outside air is drawn into a slowly revolving chamber and is passed through a bed of de-humidifying material which absorbs the moisture, somewhat in the nature of a sponge. Ordinary tap water then is used to regulate the humidity of the air and to cool it to a comfortable degree, following which the air passes through a fine mesh filter for removing the dust particles. Finally, the conditioned air reaches a fan chamber from which it is forced into the circulating ducts. Gas heat is applied to drive off the moisture collected in the de-humidifying bed and to restore the absorbent powers every twenty minutes. The entire heating and cooling system is controlled thermostatically and the operation of all of the equipment may be controlled from a small bronze panel located in the stairway leading to the basement. From this central control one may dictate whether, according to outside conditions, the air shall simply be circulated; whether it shall be cooled and circulated; or whether the combination of cooling, drying and circulating is necessary to produce comfort. The re-evaporative scheme of cooling has been made use of in this building.

The ONLY VENTS AND in two separate

Simplified Action
Quicker Venting
Quicker Vacuumizing
Less Pressure at the Boiler

"Warco"
TRADE MARK REGISTERED

MASTER
2M
Vacuum Valve

1 Chromium-plated.
2 Precision-made throughout—nickel silver seating pins. Troubleproof.
3 Cannot become water-logged.
4 Sensitive vacuum bellows—operates quickly and completely on extremely low pressure.
5 Indispensable for oil or gas-fired boilers and automatic stokers.

VALVE that VACUUMIZES and distinct operations

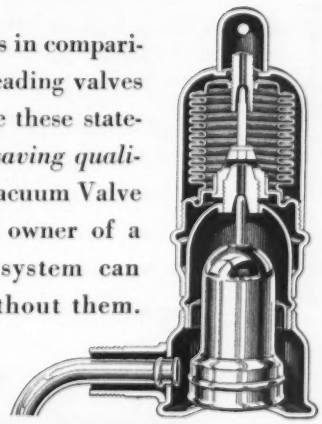
A TRIUMPH of engineering — this Warco 2M principle—the most important air valve development since W. A. Russell & Co. made and marketed the first practical air valve 43 years ago.

Let's see how it works. Take a look at the inside of the valve here shown. As steam advances from the boiler, the *lower or venting section* of the valve empties all air from the radiator—and closes the instant the radiator is full of steam.

As the system cools, condensation creates a vacuum. The vacuum bellows in the *upper section* of the valve is pushed down by outside air pressure, sealing the valve tightly against the return of air.

The two operations are accomplished with amazing speed and thoroughness, and independently of each other, by virtue of the *double chamber.* The Warco Master 2M Vacuum Valve is the fastest venting valve on the market. It is the most rapid and efficient vacuumizing valve in existence.

Exhaustive tests in comparison with other leading valves enable us to make these statements. The *fuel-saving qualities* of this new Vacuum Valve are such that no owner of a one-pipe steam system can afford to be without them.



Two Valves in One

To Oil Burner Dealers

Consumption of oil has been reduced 25% to 33⅓% by the Warco Master 2M Vacuum Valve. So sensitive, it operates on hot vapors—a particular advantage in spring and fall when only a little heat is necessary. More consistent and uniform heat all winter results from the use of this Vacuum Valve.

To All Heating Contractors

Save your customer large sums of money and bring him more heat, by vacuumizing his radiators and mains with the new Warco Masters. Good profit in such jobs for you, steady work all winter. Just place a trial order for a dozen valves with your Wholesaler and see for yourself.

W. A. RUSSELL & COMPANY
Grand Central Terminal Building
NEW YORK ***Estab. 1890***

W. A. RUSSELL & COMPANY D-10
Grand Central Terminal Bldg., New York

Please send complete information and prices on Warco Master Vacuum Valves—also on complete line of Warco Valves for every air valve need.

Firm Name .....

Address .....

City ..... *State* .....

Coal Oil Gas

Chart provides quick means for determining the cost of heating with each of these three fuels

By J. Donald Kroeker

A NOMOGRAPHIC alignment chart by means of which seasonal heating costs may be accurately determined for any type of fuel is shown in Fig. 1. This chart is useful also in making comparisons of costs of heating with various fuels.

The chart represents graphically the simple formula for computation of seasonal heating cost:

$$C = 24 \frac{P\,H\,D}{V\,T_d\,E}$$

in which P is price per unit of fuel in dollars; H is the heat loss from the structure in Btu per hour; D is the seasonal heating coefficient in degree days; V is the heating value in Btu per unit of fuel; T_d is the design temperature difference in degrees Fahrenheit on which H was calculated; and E is efficiency, expressed as a decimal.

TEMPERATURE AND CLIMATE IMPORTANT

For accuracy in application of this formula, discretion must be used, particularly in applying the seasonal heating coefficient and in selecting the proper efficiency value.

The chief considerations which must be borne in mind in applying the heating coefficient are the maintained temperature and the climatic characteristics.

Allowance can be made easily with fair accuracy for considerable difference, such as between day and night, in maintained temperatures of systems in daily use. Somewhat more involved calculations are necessary in computing the heating costs for buildings used intermittently, although the maintained temperatures during use are the same. Here it is necessary to determine the heat capacities of the buildings, based on differences between inside and average outdoor temperatures, which must be added to the heat requirements as determined from the percentages of the heating coefficient actually applicable. Of course, great accuracy cannot be claimed for such calculations and much greater variations from heating estimates of this nature are to be expected than for those made for buildings with closely maintained indoor temperatures.

Climatic characteristics which it is necessary to consider seem to be wind conditions, which should, however, have been given proper consideration in making the heat loss calculations; relation of maximum to average monthly requirements; and magnitude of the heating coefficient or, in other words, the severity of the normal heating season. It has been demonstrated, however, that, on the whole, this coefficient, as established from U. S. Weather Bureau records, applies accurately except in very mild climates; namely, those having less than 3,000 degree days, for which no definite generally applicable corrections are known to be in use.

Values of the seasonal heating coefficient are available for most cities of the United States in the form of "degree day" tables or may be selected with fair accuracy from "iso-degree day" maps.[1]

The factor in the above formula which is most difficult to determine for all cases is that of efficiency, which should represent the ratio of the heat delivered per season and the heat input for the season.

DETERMINING HEAT LOSS ACCURATELY

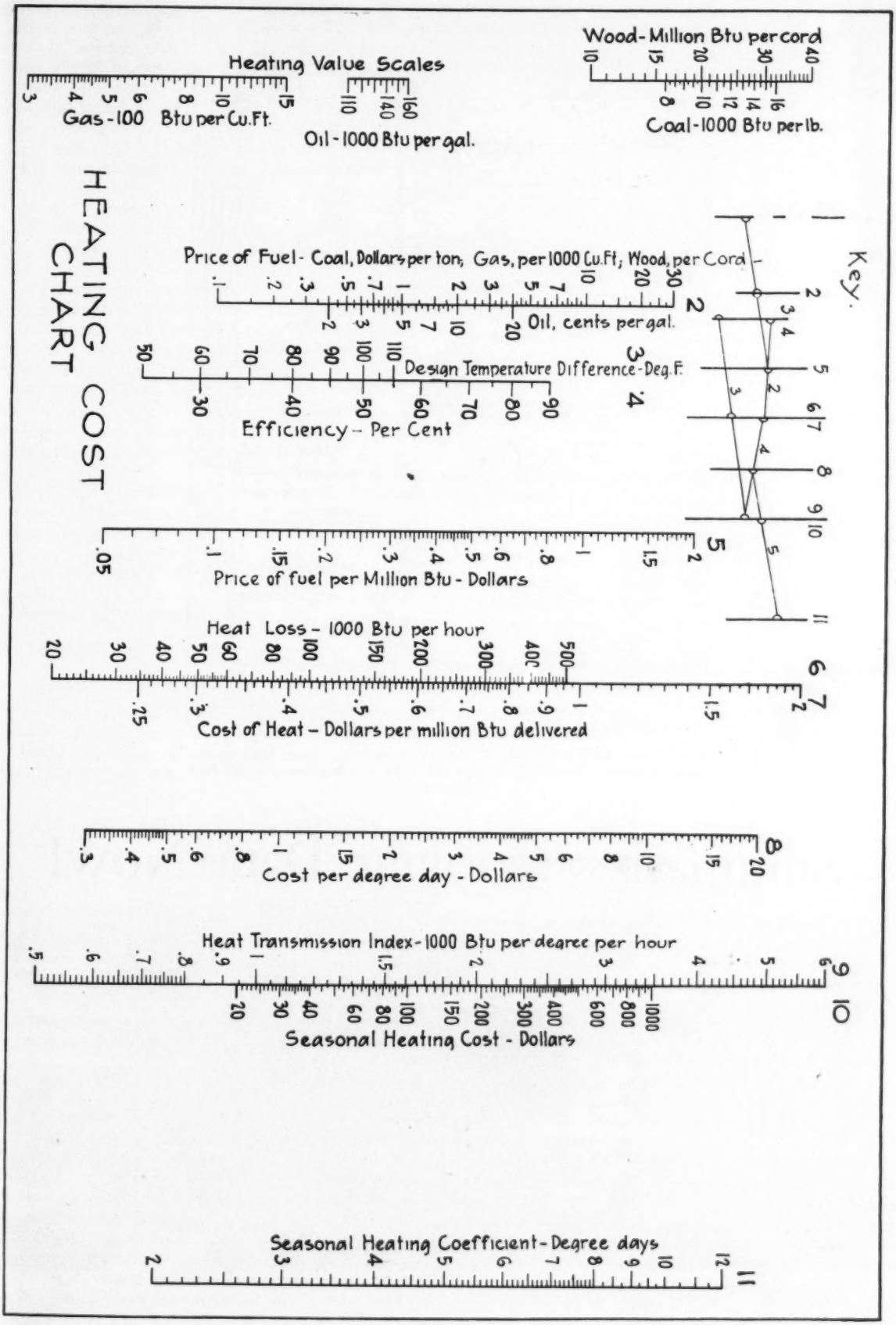
It is most accurately predictable for systems designed for and used on certain fuels at fixed input rates while in operation, such as gaseous and oil fuels, under thermostatic control. It is somewhat less fixed for solid-fuel burning equipment converted to these fuels, but is still sufficiently reliable for use in making heating estimates.

For solid fuels efficiencies depend so much on firing methods and care that they can rarely be given within five per cent.

The value for heat loss from a structure used in the above equations should never be obtained "roughly" from the area of installed radiation or area of warm air pipes or registers, if any degree of accuracy is desired, because radiation and warm air supply equipment are very seldom installed to exactly offset heat losses and are usually oversized. If a heating cost estimate is to be worth anything at all it should be based on conscientiously made heat loss calculations, taking into account computed infiltration, rather than infiltration by an arbitrarily selected number of air changes.

(Continued on page 88)

[1] American Gas Association Industrial Gas Series, House Heating. A. S. H. & V. E. Guide.


HEATING COST CHART
Heating Value Scales
Gas - 100 Btu per Cu. Ft.
Oil - 1000 Btu per gal.
Wood - Million Btu per cord
Coal - 1000 Btu per lb.
Price of Fuel - Coal, Dollars per ton; Gas, per 1000 Cu. Ft; Wood, per Cord
Oil, cents per gal.
Design Temperature Difference - Deg. F.
Efficiency - Per Cent
Price of fuel per Million Btu - Dollars
Heat Loss - 1000 Btu per hour
Cost of Heat - Dollars per million Btu delivered
Cost per degree day - Dollars
Heat Transmission Index - 1000 Btu per degree per hour
Seasonal Heating Cost - Dollars
Seasonal Heating Coefficient - Degree days
Key.

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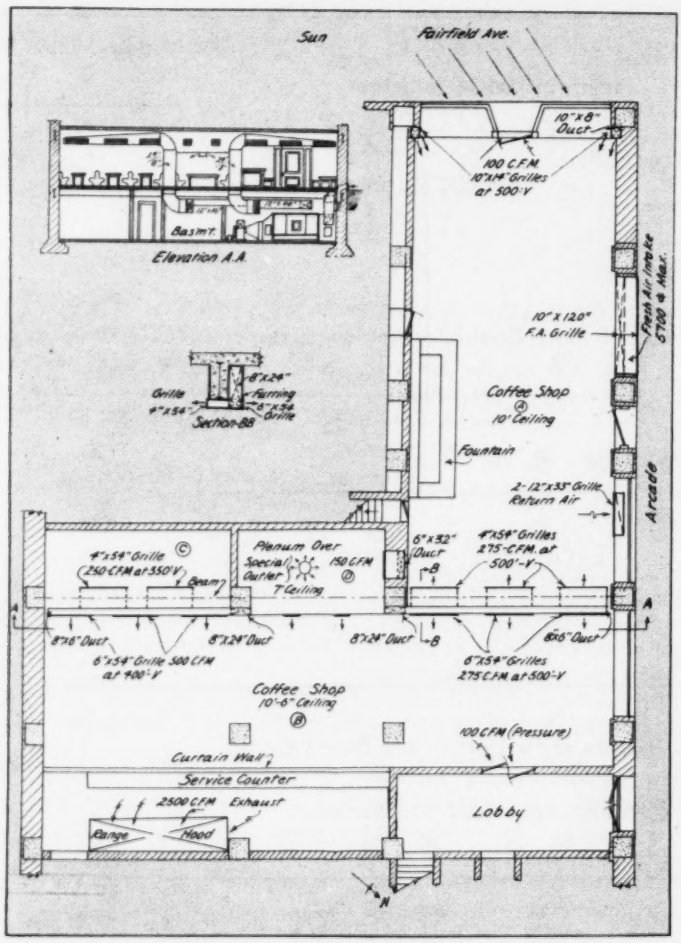


Fig. 1—This is a plan view of the air conditioning installation in the Barnum Hotel. The elevation through section A-A illustrates the duct arrangement

Summarize Cooling Data Now!

This is an unusually complete and informative article on the design, installation and operation of air conditioning equipment. Now is the time to assemble this data for next year

By Andre Merle

REHABILITATION is the magic word of the hour, and it is most gratifying to learn of the many and varied uses to which air conditioning, as perfected today can be successfully employed in bringing this about. To the Barnum Hotel, located at Bridgeport, Connecticut, belongs the distinction of having the first Coffee Shop in the state of Connecticut completely air conditioned.

The Coffee Shop seats 175 people and occupies a floor area of 1,830 sq. ft., with a ceiling height of approximately 11 ft. The cubage of the conditioned area is 19,400 cu. ft.

As the Coffee Shop had been in operation for some time previous to the installation of the air conditioned system, many obstinate construction problems were met and solved. Extreme care had to be exercised so as not to mar or destroy the many valuable decorations. The architectural treatment was most decorative and could not be altered or revamped to any great extent

This system was installed late last summer, so that

PAGE(S) MISSING

but a few weeks of real summer weather was experienced; during this short time the guaranteed temperature and humidity conditions were maintained. With 95 deg. Fahr. dry bulb and a 75 deg. Fahr. wet bulb equivalent outdoors, 80 deg. Fahr. dry bulb, 68 deg. Fahr. wet bulb and 55 per cent R.H. were produced, free from drafts. During the past winter season with zero weather 75 deg. Fahr. dry bulb and 35 per cent to 45 per cent relative humidity were produced and maintained with ease.

One of the most important phases of the installation was the determination of the maximum cooling load. In this calculation many and varied were the factors to be considered, including the type of construction and location of the area to be conditioned, the indoor temperature and humidity conditions desired, the probable outdoor wet bulb hours, along with the patron load, sun, electric lights, food, kitchen exhaust, air balance and pressure requirements and the hours of operation.

Each of these items had to be carefully calculated at their maximum, as both the heat gain from the people and climate occur during the same hours. It is most important to remember this fact, and to design all equipment for the maximum or peak load conditions. The sensible heat load calculations for cooling are practically the reverse of winter heat loss calculations and were determined by means of well known standard formulas. They averaged approximately 60 per cent of the total heat gain or refrigerated load, as follows:

People	30%
Building Transmission	10%
Lights	15%
Food	5%
Subtotal of	60%

To obtain the balance of the load of 40 per cent, which consists of both the sensible and latent heat of the fresh and reused air, along with the latent heat of respiration of the patrons, required considerable research.

The out-of-door dry bulb maximum was first determined as 95 deg. Fahr. and the maximum wet bulb 75 deg. Fahr.

A detailed and patient survey of the weather reports over a period of ten years brought forth the following interesting and valuable operating and design data:

The length and duration of the cooling season was estimated to be 135 days, and the Coffee Shop was to operate 6 hours each day, a total of 1,080 hours per cooling season.

During these 1,080 cooling hours, the wet bulb temperature varied from the maximum of 75 deg. Fahr., which required 100 per cent cooling and refrigeration, down to 50 deg. Fahr., which represented approximately 20 per cent of the refrigeration and cooling load.

Knowing the total number of wet bulb hours, and the fact that the wet bulb temperature is indicative of the total heat to be removed (both latent and sensible), we next computed and divided the various wet bulb readings into five sub-divisions, each of which was approximately 20 per cent of the total heat or refrigerating load.

The first section of 300 hours' occurrence was the 75 deg. Fahr. to 70 deg. Fahr. W.B., inclusive, which required 100 per cent refrigeration capacity, or 20 tons.

The second group of 300 hours of 69 deg. Fahr. to 65 deg. Fahr. W.B., inclusive, which called for 80 per cent refrigeration capacity, or 16 tons.

The third group of 270 hours of 64 deg. Fahr. to 60 deg. Fahr. W.B., inclusive, which called for 60 per cent refrigeration capacity, or 12 tons.

The fourth group of 160 hours of 59 deg. Fahr. to 55 deg. Fahr. W.B., inclusive, which called for 40 per cent refrigeration capacity, or 8 tons.

The fifth group of 50 hours of 54 deg. Fahr. to 50 deg. Fahr. W. B, inclusive, which required 20 per cent refrigeration capacity, or 4 tons.

Through the aid of this valuable weather data, a

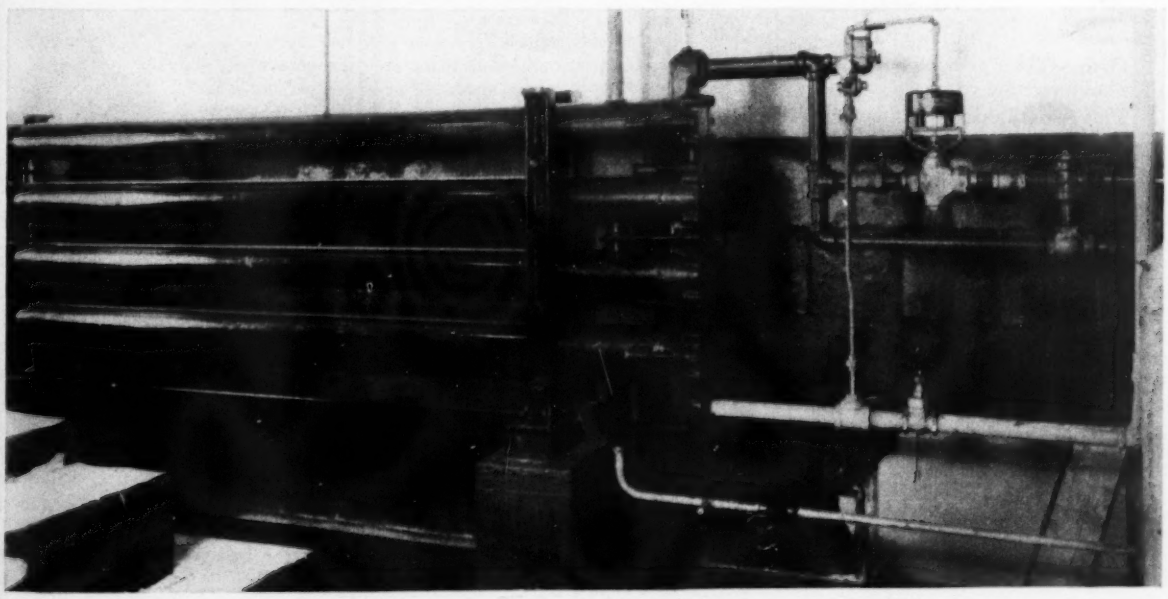


Fig. 2—Here is a view of the CO_2 condensers and controls serving the coffee shop air conditioning installation

DOCTOR, THE BABY HAS A COLD AGAIN!
OVERHEATED DRY AIR IS CAUSING THOSE COLDS
BUT OUR HOUSE FEELS COLD AT 75°
THAT'S BECAUSE THE AIR IS TOO DRY
GET AN ORTHO-CLIME
SO THEY GOT AN ORTHO-CLIME
NOW WE NEVER HAVE COLDS OR SORE THROATS ANYMORE!
—AND OUR COAL BILLS ARE MUCH LOWER!

The *Greatest* *Sales Opportunity* ever placed in the hands of a Dealer

OVER-DRY air heats more slowly and requires more fuel. And with dry air you have to *overheat* in order to feel warm. Air, too dry, is the greatest single cause of the common cold, sore throat and consequent diseases.

The F-M Ortho-Clime is an inexpensive, efficient means of warming, cleaning and humidifying air. Install one, for the average home, in place of the usual radiator and fuel bills are reduced and dangers of over-dry air eliminated.

Ortho-Clime also cleans, cools and *drys* the air for summertime comfort.

The remarkable efficiency and low price of Ortho-Clime combined with an actual need and great market make it the biggest profit opportunity ever placed in any dealer's hands.

Use the coupon today. Dealer territories are going fast.

FAIRBANKS, MORSE & CO.

MANUFACTURERS, CHICAGO, U. S. A.

Branches and Service Stations Covering Every State in the Union

MAIL THIS COUPON

FAIRBANKS, MORSE & CO., Dept. I 10
900 South Wabash Avenue, Chicago, Ill.

Please send me full information on ORTHO-CLIME.

Name .....

Address .....

most accurate engineering design balance was made possible.

In order to properly determine the maximum heat gain an estimate of the average patronage load was made, based on the past season's operation and on other typical coffee shops which had been completely air conditioned.

The breakfast period was estimated to average approximately 3 hours from 7 a. m. to 10 a. m., with an average patronage of 33 per cent capacity, which equals 360 meals. The luncheon period, three hours, from 11 a. m. to 2 p. m., with an average patronage of 55 per cent, or 600 meals The dinner period was for two hours, 5 p. m. to 7 p. m., with an average 11 per cent of the total patronage, or 120 meals. The total number of meals estimated served each day averaged 1,080, which is typical for a coffee shop of this size, based on six meals per seat (180 seats × 6 equals 1,080 meals).

It is important to note that the maximum heat load due to patronage occurred during the luncheon period, 11 a. m. to 2 p. m., which is also the warmest and most humid weather period during which the Coffee Shop is in operation. This fact necessitated the system being designed for the total heat gain of both the maximum heat gain due to patronage and the maximum heat gain due to climate conditions, as they occurred simultaneously.

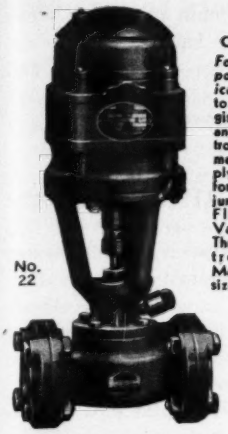
ENGINEERING SUMMARY DESIGN DATA

People	180	
Cubage	19,400	
Floor area	1,830	
Air change	3½	minutes
Dehumidifier ⅔ section	3,800	C.F.M.
Dehumidifier ⅓ section	1,900	C.F.M.
Reused	3,000	C.F.M.
Supplied	5,700	C.F.M.
Fresh Air (minimum)	2,700	C.F.M.
Chilled water	72	G.P.M.
Condensed water (city)	30	G.P.M.
Refrigeration	20	tons
Square feet floor area per person	10	
Cubic feet space area per person	108	
C.F.M. fresh air area per person	15	
C.F.M. supplied air area per person	32	
C.F.M. square foot floor area	3	
C.F.M. per ton of refrigeration	280	
C.F.M. per ton of refrigeration	280	

750 c.f.m. is distributed toward the store front and an equal amount toward the rear from a suspended duct along the side of a drop beam, furred in. The front portion of the shop receives an additional supply from the two outlets located on either side of the front side walls. Both of these supply outlets deliver 500 c.f.m. at a velocity of 500 r.p.m. Deflecting vanes have been installed so as to converge the air flow toward the center and rear of the Coffee Shop.

The offset rear portion of the establishment is supplied by 2 outlets from a pressure plenum, delivering 450 c.f.m. and 5 outlets from a supply duct. Three of these outlets discharge 500 c.f.m. each toward the curtain wall in front of the service counter, and the other two extended outlets distribute 250 c.f.m. each to the space marked "C" on the plans.

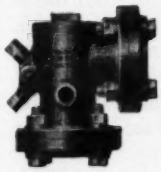
The 3,000 c.f.m. of room air returned to the condi-



No. 22

THRUSH WATER CIRCULATOR

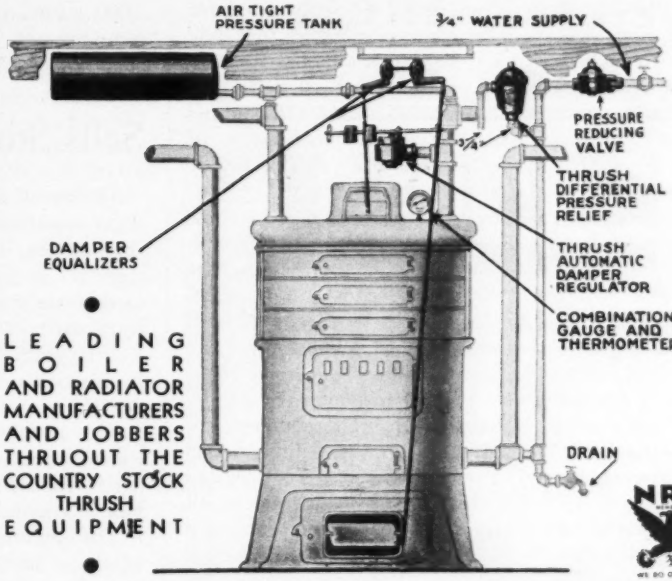
For providing positive mechanical circulation, to overcome sluggish circulation and other heating troubles, for domestic water supply systems and for use in conjunction with the Flow Control Valve in the Thrush Flow Control System. Made in three sizes.



No. 125

THRUSH FLOW CONTROL VALVE

Designed for use in conjunction with Thrush Circulator in Thrush Flow Control System to control physical distribution of heating medium. Made in 3 sizes.



LEADING BOILER AND RADIATOR MANUFACTURERS AND JOBBERS THRUOUT THE COUNTRY STOCK THRUSH EQUIPMENT

Modernization with Thrush Equipment

No. 12

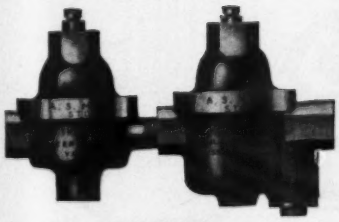
PRESSURE REDUCING VALVE

For automatic filling on large boilers. Has large waterways and will fill the system rapidly. Finely made, fully guaranteed.

No. 4

DIFFERENTIAL PRESSURE RELIEF VALVE

A safe and dependable Pressure Relief. No tight fitting guide. Large metal diaphragm actuates movement of free working valve member.



STANDARD DUAL CONTROL UNIT

Pressure Reducing Valve with built-in strainer and Pressure Relief Valve. A high grade automatic unit for controlling tankless jobs.

Thrush offers the proper Equipment for any type of Hot Water Heating Installation . . . and any price range!

★ MODERNIZATION of neglected heating plants is one of your biggest sources for immediate business. Learn about the Thrush line of specialties for Hot Water Heating and Domestic Water Supply and the dozens of different possibilities for the improvement of the efficiency of any type of Hot Water Heating plant, old or new. Just a few of the items are shown on this page. Get the complete Thrush price list and literature on any product which interests you—or tell us your specific problems. Thrush engineers can help you make more profit, and satisfy your customers more completely. Use the coupon.

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Peru, Indiana

MAIL THIS COUPON NOW!

H. A. THRUSH & CO.,
P. O. Box 459, Peru, Indiana

Send price list showing complete line of Thrush Hot Water Specialties.

Name.....

City..... State.....

DOMESTIC VALVES

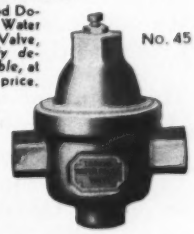
REDUCING VALVE

A ¼" Automatic Pressure Reducing Valve with Strainer *for use with either water or air* or other special work.

No. 9

RELIEF VALVE

A good Domestic Water Relief Valve, *entirely dependable,* at a low price.



No. 45

No. 70

PRESSURE REDUCING VALVE

A 1" red brass Pressure Reducing Valve. *Absolutely dependable.*

tioning apparatus for reuse in part is withdrawn from the Coffee Shop through 2 grilles, one located on the top and the other on the side about a foot or so above the floor line. A specially constructed collecting box which is virtually a part of the return air duct forms a plenum for this reused air.

The fresh air supply is obtained through a louvred and grilled opening facing the arcade passageway, of sufficient capacity to handle the entire air volume (5,700 c.f.m.).

The outstanding feature of this installation is the automatic temperature and humidity control. This system has provided year 'round comfort with a minimum of personal adjustment and is practically fool-proof. Note that all of the air which enters the conditioned area is fully washed and dehumidified. The control system employs pneumatic type instruments. Air at 15 lb. pressure is furnished the various instruments and devices by an electric air compressor. The summer dew point control is maintained by an immersed direct acting temperature regulating valve mounted in the air washer tank and set at 41 deg. Fahr. This instrument controls the refrigeration rate of the CO_2 compressor. The dew point is controlled by two direct acting thermostatic valves, one on each spray bank. These valves normally are open, closing when the room wet bulb temperature rises. When this occurs, the two-thirds area section acts as a by-pass. There are two fresh air dampers of the louvred type, one of which is automatic in operation and set to open when the outside W.B. is 56 deg. Fahr. or above. The other damper is manually operated and adjusted to pass the minimum amount of fresh air required (2,700 c.f.m.). The balance of the air, 3,000 c.f.m., is withdrawn from the Coffee Shop and reconditioned.

(To be concluded in November)

Sells Stoker, Boiler and Duct—

(Continued from page 64)

The use of the air conditioning system counteracts any arguments that may be advanced against a steam system such as dirt, dry air, etc. At the same time the advantages are so apparent that there was little effort required to sell this system, and at a higher price than a straight warm air could have been purchased for.

Temperatures were figured for 75 deg. in zero weather in all rooms except bathrooms, which were figured for 80 deg.

The total load is 3,100 sq. ft. of E.D.R., and the coal consumption will run this year about 80 tons. At $3.75 a ton, the owner's fuel bill will be $300, which is certainly economical.

The quantity of air circulated was calculated on a basis of three air changes per hour, which is sufficient for moisture supply and filtering purposes.

Circular About Stokers

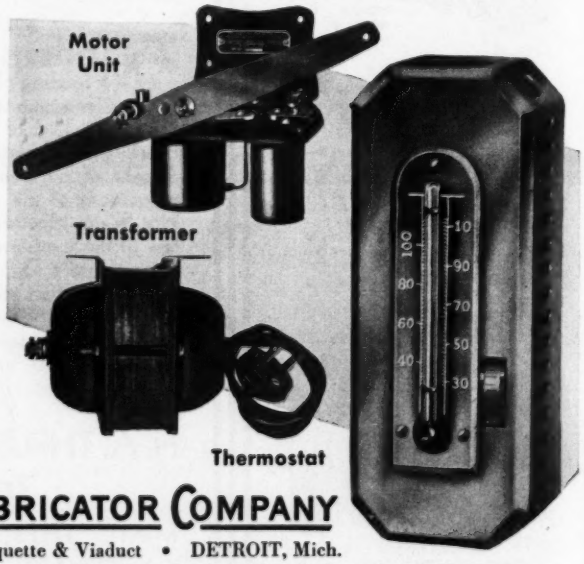
The Howe Scale Company of Rutland, Vt., has issued a circular illustrating and describing the Hannon line of stokers, of which it is national distributor.

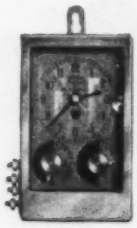
• "GENUINE DETROIT" No. 425 TEMPERATURE REGULATOR •

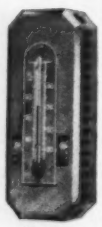
Easy to sell, simple to install!

YOU can make good profits, selling "Genuine Detroit" No. 425 Temperature Regulators. They are low-priced and easily installed without costly service. Any journeyman can connect the simple, two-wire circuit and plug into the light circuit.

This regulator operates noiselessly to provide close, accurate control of temperature with ample power to operate the dampers. For night and day control, the No. 426 Regulator includes a two-blade Thermostat and an electrically operated clock switch with Telechron movement. Write for Bulletin No. 53.




No. 456 Clock Switch


No. 455 Night and Day Thermostat

DETROIT LUBRICATOR COMPANY

Trumbull, Lincoln, Marquette & Viaduct • DETROIT, Mich.

Canadian Rep.: Railway & Engineering Specialties, Ltd., Montreal, Toronto & Quebec

Lubricators · Carburetors · Valves · Automatic Controls for temperature, pressure, humidity · Refrigeration, Oil Burner and Heating Accessories

New England Range Oil Burner Manufacturers Organize

Massachusetts and Connecticut oil-burner manufacturers met September 5 at the Grandahl Tool & Machine Co.'s plant in Hartford, Conn., to discuss plans for a range oil burner code. The attendance represented 75 per cent of the manufacturers of New England manufacturing range burners. An association was formed and a preliminary code for fair competition was drawn up and will be submitted to the authorities in Washington.

Harry H. Goldstein of the American Oil Burner Co., Hartford, Conn., was elected president of the new association. Other officers are: Secretary, I. Chester Bland, Bland Oil Burner Co.; treasurer, George Grobard, Liberty Oil Burner Co. The board of directors includes: Abraham Grobard, Liberty Oil Burner Co.; Gabriel Grobard, Ameroil Burner Co.; G. E. Teplow, Superheat Oil Burner Co.; Morris Goldberg, Victor Oil Burner Co.; R. L. Holloway, Red Head Oil Burner Co., and M. O. Peterson, Oil Burner Corp. of America. The board of directors will act as a bureau of information regarding the workings of the proposed code and will see that all members abide by the rulings of the code. The code indicates that a 35-hour working week will be enforced, but 48-hour working weeks will be allowed during rush periods over a four-week stretch. Minimum wage is 45 cents per hour. Basic prices for products are expected to be higher in some instances. Other meetings are scheduled and new members are expected to sign.

Companies which have already signed the code agreement are: American Burner Mfg Co., Ameroil Burner Co., Bland Oil Burner Co., Connecticut Oil Burner Co., Liberty Oil Burner Co., Oil Burner Corp. of America, Nutmeg Oil Burner Co., Ideal Burner Co., Yankee Range Burner Co., Red Head Oil Burner Co., Torrid Air Oil Burner Corp., Victor Oil Burner Co., Superheat Oil Co., all of Hartford; Hudson Oil Burner Co., Clinton, Mass., and the Merrimac Oil Burner Co., Clinton, Mass.

The Value and Importance of Identification of Cast Iron Boilers

A. J. Loppin, assistant superintendent of the Fidelity and Casualty Company of New York and chairman of the Committee on Identification of Cast Iron Boilers, reports that casualty insurance companies have experienced difficulty in a number of cases in identifying cast iron boilers for rating purposes on account of size numbers being inadvertently removed when oil burners were installed.

Rates for insuring boilers against cracking and fracturing of sections depend principally upon the size numbers. When a size number does not appear upon a boiler it is arbitrarily classed for insurance rating purposes as an obsolete model, regardless of the fact that it may be of current manufacture, and a much higher rate is applied than would be the case if the boiler were properly identified.

The American Oil Burner Association, therefore, suggests that dealers take precaution against this practice and that where removal of the size-number is absolutely essential in order to effect the installation, that

MORE SALES

BIGGER PROFITS

LYNN

Range Oil Burners

offer you a complete line

at prices for all

LYNN De LUXE

LYNN AUTOMATIC De LUXE
The Rolls Royce of Automatic Oil Burners

LYNN De LUXE
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NEW LYNN LYPRO
Famous for Efficiency

LYNN JUNIOR
Built-in LYNN Quality

Power Burner Dealers wanted to market the new Lynn Line of Hotel and Restaurant Equipment

Lynn Products are Nationally known for their uniform high quality

FULL GUARANTEES ON ALL MODELS

A few valuable territories still open. Send for complete catalogue with dealer discounts.

LYNN PRODUCTS COMPANY
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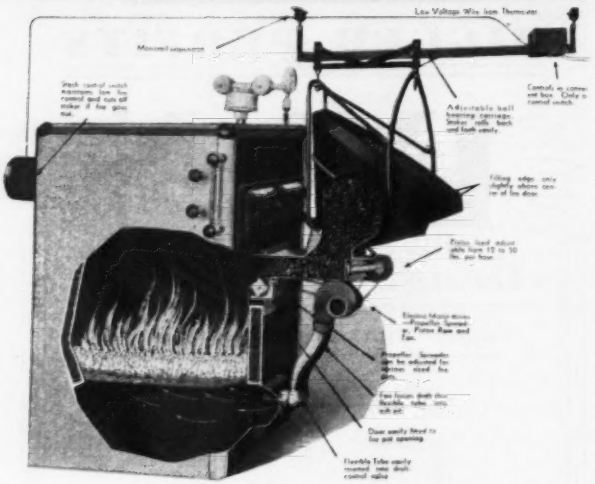
HANNON STOKER



LOOK AT THESE FEATURES

They Mean Easy Selling!

A brief examination of the details of the Hannon Overfeed Domestic Stoker will, we believe, convince you that at last the problem of burning coal automatically in domestic furnaces has been solved. This stoker costs no more than an electric refrigerator. Three years of successful performance assures dependable operation.

Installation can be made in a few hours—without pulling the fire or altering the furnace—and it can be removed and reinstalled in another house just as easily. It comes complete with thermostat and stack fire controls.

Attractive dealer territories are still open and qualified inquiries are invited. Never before has automatic heat been so salable as it is with the Hannon Stoker. Address inquiries to Stoker Division, Cleveland, Ohio.

THE HOWE SCALE CO.

Home Office, Rutland, Vermont

Branch Offices at

Boston Chicago Cincinnati Cleveland Kansas City
Minneapolis New York Philadelphia Pittsburgh St. Louis

THE HANNON STOKER SAVES MORE THAN TWENTY-FIVE PER CENT OF THE COAL BILL THROUGH MORE EFFICIENT FIRING AND USE OF LESS EXPENSIVE SIZES OF COAL

they have a duplicate number plate made and attached to some other part of the boiler, noting this change on the permanent installation record. In order to avoid even implied responsibility—when the dealer does find it necessary to remove that part of the boiler carrying the identification—it would appear advisable for him to so advise the burner owner in writing. In the event the boiler number may have been removed previous to the oil burner installation, it would follow that the dealer should also advise the oil burner purchaser of this fact.

Lynn Products Co.'s Annual Sales Convention

The Lynn Products Co. of Lynn, Mass., held its annual sales convention recently at the University Club in Boston, Mass., with a large attendance, including the company's officers and salesmen and three hundred dealers in oil burners from all parts of New England.

The main speakers of the meeting were Lawrence E. Johnson, president of the Lynn Products Co., Frank H. Van Blarcom, the company's New England sales manager, and John F. McGowan, its assistant sales manager.

President Johnson spoke about the National Recovery Act and gave a complete analysis of the Distillate Burner Manufacturers' Code. He explained under what conditions all members and competitors could and could not work without violating fair practice rules.

Mr. Van Blarcom gave a most impressive forecast of business conditions of the future, and he urged his hearers to give the National Recovery Act their wholehearted support. He predicted that this year would be the best so far in the history of the Lynn Products Co.

Mr. McGowan devoted his address to a description of the company's new oil burning hotel ranges and bake ovens.

Ralph L. Dennis of Dennis & Co., distributors in central and western Massachusetts, discussed Lynn Products Co.'s range burner line consisting of three types, covering every possible requirement.

An elaborate display of Lynn Products Co.'s entire line was arranged along the walls of the convention hall, and salesmen were assigned to each product, enabling dealers to secure a detailed explanation without delay.

The evening features were an excellent dinner and splendid entertainment by radio stars.

Electrol, Incorporated, Expanding

Electrol, Incorporated, of New York City, has recently secured the following concerns as distributors: W. A. Case & Son Mfg. Co., Rochester, N. Y.; Davies Supply Co., Chicago, Ill., and Standard Sanitary Mfg. Co., Milwaukee, Wis.

New dealers recently appointed are George S. & Donald H. Andrews, Oneonta, N. Y., and John Cohane, Bloomfield, N. J.

F. E. Gay, formerly with the Fair-Chester Oil Co. of Port Chester, N. Y., and L. G. Alonge, a former field man, have recently joined the field force of Electrol, Incorporated.

B. & F. Oil Burner Co. Starts in Business

The Best & Finest Oil Burner Company has been organized by Tillie Feldman and has started in business at 266 Martin street, Hartford, Conn. The company will also be known as the B. & F. Oil Burner Co.

Appoints Six New Representatives

A. W. Cash Valve Manufacturing Corporation of Decatur, Ill., has recently appointed the following new factory representatives to cover the territories indicated:

James B. Colloday, 938 Drexel building, Philadelphia —Eastern Pennsylvania, southern New Jersey and Delaware.

W. D. Case, 3316 Wabash avenue, Kansas City, Mo. —Kansas City district.

Manufacturers, Inc., 205 East Lake street, Minneapolis, Minn.—Minnesota.

Arthur J. Williams, 4300 Euclid avenue, Cleveland, Ohio—Northern Ohio.

Northwest Sales Co., 610 W. Michigan street, Milwaukee, Wis.—Wisconsin.

Frank H. Kaiser, 510 Prudential building, Buffalo, N. Y.—Western part of New York State.

Reports Large Increase in Demand for Oil Burners

The Century Engineering Corporation of Cedar Rapids, Iowa, reports that for the period of August 1 to 15, inclusive, sales of its oil burners exceeded the same period a year ago by 50 per cent. The largest single day in the history of this concern was recorded on June 24, and sales have continued without the usual summer slump since that time. A rapid increase started during the first days of August. Factory production is at full capacity and reports from dealers indicate a brisk demand for burners this fall, according to M. D. McWilliams, sales manager.

Oil Burner Manufacturer Appoints More Dealers

The Anchor Post Fence Co. of Baltimore, Md., manufacturer of oil burners, has announced the appointment of four additional dealers to handle its products: Patrick Hackett Hardware Co., Ogdensburg, N. Y.; Cone Oil Burner Service, Bennington, Vt., Modern Necessities Co., Maplewood, N. J., and Automatic Heating Engineers, Chicago.

New Air Conditioning Distributor

The Hamlin Air Conditioning Company has been organized and incorporated by Chauncey J. Hamlin, Jr., and associates, to act as western New York distributor for the air conditioning division of the General Electric Company of Schenectady, N. Y. The new company has established headquarters at 307 Delaware avenue, Buffalo, N. Y, with Roland H. Davison as general manager.

Hartford County Oil Burner Dealers Meet

Members of the Hartford County Oil Burner Dealers Association held a meeting at the City Club in Hartford, Conn., on Wednesday, September 13, at which some of their problems were considered, particularly competition in their territory.

Circular on Double Seal Connections

Hays Manufacturing Company of Erie, Pa., has issued a circular describing and illustrating its double seal connections designed to be used in joining the fuel tank to the burner in oil burner installations. The circular states that the double seal feature provides a joint that holds tight against any stress in service.

What's this..
Just Another Unit Heater?
Not by a long shot!
See this NEW REXVANE FAN
It cuts Motor Horse Power in Half
And this NEW LEAK-PROOF Heater
Just try to break one of the joints!
INVESTIGATE THESE AND OTHER FEATURES
Write for Catalog 395 and Complete Data
B. F. Sturtevant Co., Hyde Park, Boston, Mass.
Sturtevant

Thanks to the

HEATING

CONTRACTOR

• The unusual success of YORK burners . . . the growth from a very small beginning to the largest manufacturer of the pressure type burner . . . is the result of the large number of leading heating contractors handling YORK burners.

• Our records show that 88% of the dealers handling YORK burners are in the heating business. This is not a happy accident but is the result of our belief over a period of years that the heating contractor is the logical outlet for oil burners.

• Whereas most oil burner manufacturers seek the specialty dealer as an outlet, we have always endeavored to work with the heating contractors because of their greater experience, their stability and ability to guarantee the successful operation of the entire heating plant coupled with the oil burner.

• Statistics published concerning last year's oil burner business show that 71% of all the burners sold were of the pressure type . . . and the York Oil Burner Company is the oldest and largest manufacturer of this type of equipment.

• Not only last year but this year as well we are showing an unusual increase in business due to the quality of our products, the unusual prices at which we sell them and the manner in which we conduct our business . . . coupled with our belief in the heating contractor.

• Our merchandise, which comprises domestic, commercial and industrial burners . . . low and high pressure oil burning boilers . . . oil burner accessories and air conditioning room units, is the most extensive line of equipment in the industry.

• If you are not selling a pressure type burner and not handling the YORK, you should; as the YORK franchise is proving to be one of the most profitable of any company in the country. May we suggest that you write at once for further information before someone else in your territory is granted a franchise.

York

Oil Burner Co., Inc.

York, Pa.

New Sales Helps

Folder on Automatic Control for Relative Humidity

Humidity Control Company of Tacoma, Wis., has issued a six-page folder illustrating and describing its humistat, an instrument that is designed to maintain the proper humidity in homes and public buildings and to eliminate overheating. The device is small and can be mounted on a wall in an inconspicuous place.

Folder Describes Automatic Shut-Off Valve

York Oil Burner Co., Inc., of York, Pa., has issued a folder describing and illustrating its line of automatic shut-off valves, which are designed to stop the flow of oil in case of pipe or fitting breakage or the overfeeding of oil at the burners, eliminating the danger of loss of oil and of costly fires, and thus protecting both life and property.

Catalog of Gas Burners

Lee B. Mettler Co. of Los Angeles, Calif., has issued a new catalog of its entrained combustion gas burners, with specifications, installation drawings and combustion engineering data. The catalog consists of 52 pages, 8½x11 in. in size, and is well illustrated. It lists combustion gas burners for all purposes, all kinds of gas, and all pressures.

Bulletin on Oil Burner Ignition Transformers

Jefferson Electric Company of Bellwood, Ill., has issued a bulletin with illustrations and descriptions of its line of oil burner ignition transformers for every specific application—5,000, 10,000, 12,000 and 15,000-volt ratings — for intermittent and continuous service — grounded, mid-point grounded, balanced mid-point grounded, and insulated secondaries—and in core and shell-type designs.

Catalog of Pressure Reducing Valves

A. W. Cash Valve Corporation of Decatur, Ill., has just issued its catalog D, describing and illustrating its pressure reducing and regulating valves and its valve specialties. The catalog consists of 16 pages, 8¼x11 in. in size, and it stresses the point that several new types of valves have been added and older types have been improved.

Announcing Air Conditioning and Noise Silencing Unit

Campbell Metal Window Corporation, Division of American Radiator & Standard Sanitary Corporation of New York City, has issued a 16-page pamphlet announcing an all year round air conditioner and silencer room unit, a product, which the corporation considers one of the great engineering achievements of this generation—worthy to be compared with the motor car, the radio and the automatic refrigerator. This air conditioner and silencer, according to this pamphlet, is a device which is capable of supplying cooling, dehumidification, ventilation, noise elimination, cleaning, heating and humidification. In other words, this new unit provides, without noise, fresh outside air, properly cleansed, con-

taining the right moisture content at a comfortable temperature during all seasons of the year—air that is healthfully and invigoratingly correct for the human body.

Air Conditioning Catalog

B. F. Sturtevant Company of Hyde Park, Boston, Mass., has issued its Catalog No. 392, covering "Air Conditioning," including heating, humidifying, ventilating, cooling and dehumidifying. This catalog illustrates and describes the various types of unit apparatus, designed and produced by this company, for the many and varied applications of air conditioning in homes, offices, stores, restaurants, railroad cars, etc.

Catalog of Valves and Fittings for Oil

Milwaukee Valve Company of Milwaukee, Wis., has issued catalog No. 33, listing its valves and fittings for oil, including hose nozzle valves for meter pumps, check valves, foot valves, air vents, gate valves, throttle valves, globe and angle valves, by-pass pressure relief valves, swing check valves, shut-off valves and nozzles, union wrench couplings, swing joints, etc. The catalog consists of 24 pages, 8½x11 in. in size, and well illustrated.

Broadsides About Stokers

The Motorstokor Corporation of New York City is distributing two broadsides about its line of stokers, which have been designed for large buildings, factories, schools, churches, etc., as well as for homes. The larger models handle plants burning up to as much as 250 tons of coal per year. This type of stoker is described as feeding in the coal and taking out the ashes, without dust, keeping the house at a steady, even temperature, and doing it all automatically.

Distributes Air Conditioning Texts for Heating Contractors

Under the auspices of its committee on air conditioning, the Heating and Piping Contractors National Association has recently completed and published in three parts a series of ten air conditioning lessons. Part One, containing the first four lessons, presents in simple form the fundamental information and engineering data which the contractor needs in the development of the air conditioning market. Part Two, containing the next three lessons, deals with the making of an air conditioning survey, the design and layout of air conditioning systems, and the selection of equipment for use in summer cooling. Part Three, containing the last three lessons and concluding the series, deals with the apparatus and equipment which is available, methods of selling it, and how to operate and service air conditioning systems. These three parts, containing a total of 194 pages, together with a durable three-ring flexible imitation leather binder, are available for $5 for the complete set. Copies may be had by request to the Heating and Piping Contractors National Association, Rockefeller Center, 1250 Sixth Avenue, New York City.

SPLASH PROOF

Splash Proof... Storm Proof... Thoroughly Ventilated! This is the full and permanent protection assured by Century Splash Proof Motors—where splashing water or other liquids are present—indoor or outdoor installations—where washing down of plant and machinery is necessary... Protection against damage from falling chips, scale and other similar material.

This is accomplished by durable construction throughout—frames and end brackets are of refined gray cast iron.

They cost but little more than standard open motors and have the same mounting dimensions as standard open motors of the same size... Furnished for single or multiple speed operation—**1 horse power and larger.**

NRA WE DO OUR PART

Century MOTORS

CENTURY ELECTRIC COMPANY
1806 Pine Street St. Louis, Mo.
Offices and Stock Points in Principal Cities

ALTERNATING AND DIRECT CURRENT, SINGLE PHASE, POLYPHASE, SPLIT PHASE, MULTISPEED AND SPECIAL MOTORS, RANGING IN SIZE—DEPENDING ON TYPE—FROM 1/250 TO 600 HORSE POWER... GENERATORS, MOTOR GENERATOR SETS, ROTARY CONVERTERS.

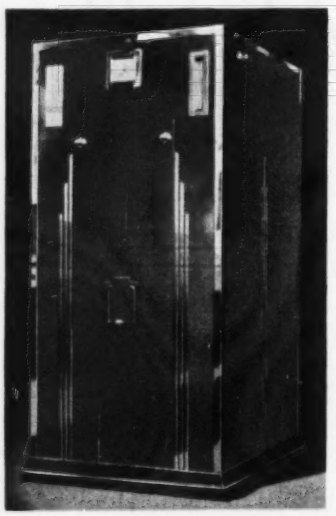
See Century Electric Co. Display, Electrical Bldg., Century of Progress

Products FOR Dealers

This section is for the latest news of automatic heat and air conditioning products. The general new products section starts on page one hundred six.

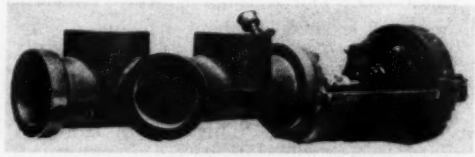
A Boiler Burner Unit for Homes

The oil burner and boiler combination shown in the accompanying illustration has just recently been announced. It contains a heat refractory hearth which has been designed to be non-crumbling and which completely insulates the burner motor, ignition, transformer and oil valves from the heat of the combustion chamber. The unit is equipped with high and low limit controls, low water cut-out and feeder and a built in large-capacity coil for heating domestic water. The boiler is constructed in sections so as to simplify basement installation. The indirect heating surfaces have been finned for the purpose of increasing the heat absorbing area. The capacity of the boiler is listed as being 750 sq. ft. of connected load. The Cleveland Steel Products Corporation of Madison and W. 74th St., Cleveland, Ohio, and the American Radiator Company of 40 W. 40th Street, New York, N. Y., are the manufacturers of the combined unit.



Circulating Unit with Double Propeller

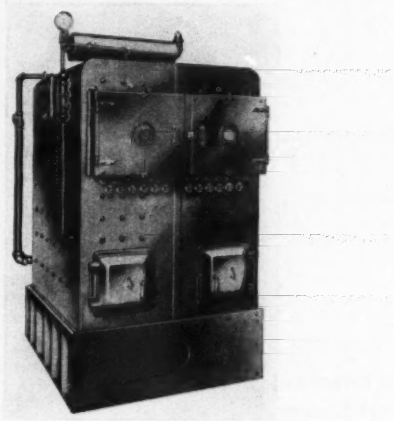
The double circulating device which is shown here consists of two propellers having a propeller wheel in each chamber, both being operated on one shaft and by one motor. The idea is to obtain circulation for the return water in domestic hot water supply systems and at the same time circulate the boiler water through an indirect water heater. It is for use with both steam and hot water systems. When connected to a hot water boiler, a control valve is placed in the hot water supply line to the building and one in the return line. The hot water heating boiler is operated through an aquastat on the boiler, keeping the boiler water at a constant temperature of from 160 to 180 degrees Fahr. The room thermostat operates the motor switch which controls the valves in the building supply and return lines. It also starts the motor of the double circulating device. For summer operation an aquastat is placed in the storage tank which starts and stops the motor on the circulator. This is designed to maintain a satisfactory temperature for the water in the domestic hot water storage tank. In the case of connecting this equipment with the steam boiler, one propeller circulates boiler water through the indirect water heater while the second propeller circulates water through the hot water storage tank and the circulating lines to the building faucets. The equipment comes in a variation of sizes to accommodate buildings ranging from bungalows or residences with one bath to 6-apartment buildings and larger. Johanson Water Heater Company, located at 1239 Fullerton Avenue, Chicago, is the manufacturer.



An Oil Burning Boiler

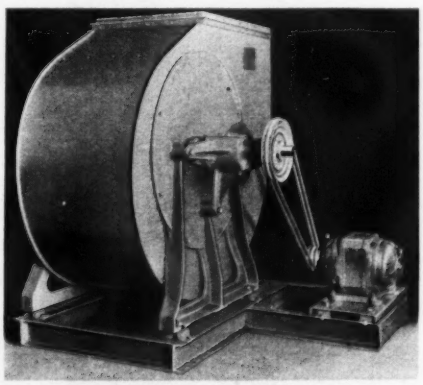
This recently announced oil burning steel boiler is supplied in capacities from 2,250 to 40,000 square feet. It has been especially designed to meet requirements for burning oil. The combustion chamber has been proportioned so as to burn even the heavy grades of oil without smoke. The gas travel and heat absorbing surface have been proportioned to assure high efficiency. It is for use with any standard make of oil burner. The two-piece method of construction has been employed to facilitate the handling and installation of the boiler. It is of the water tube and fire tube type and is of welded

steel construction. Spencer Heater Company, Williamsport, Pennsylvania, is the manufacturer.



Ventilating Fan Has Silent Base

The base which is used in connection with the fan shown in the accompanying illustration has been designed to provide a means of insulating a fan and its driving power from the building's foundation. Flexible



rubber insulators so made that there is no metal contact between the bolts holding down the base and fan, provide a damping effect. The rubber used in these insulators is "in shear." Buffalo Forge Company, Buffalo, New York, is the manufacturer.

A Dial Indicating Thermometer

The dial thermometer which is illustrated here has just recently been placed on the market for the purpose of providing an easily read temperature indicating device. The dial is 5 in. in diameter and has white numerals. It is contained in a bakelite case. The connecting mechanism has been made to be vibration proof. It is described as having a wide variety of applications.

Hundreds of Dealers Tell Us These Facts About COMBUSTIONEER!

We profitably sell COMBUSTIONEER because—

¶ it is perfected and out of the experimental stage.

¶ it is adaptable to every home, apartment and 90% of the factories.

¶ it has already many thousands of satisfactory installations.

¶ it is priced within the range of even moderately priced homes; offers an unusual investment to apartments and factories.

¶ it is built from approved engineering design; in a thoroughly modern plant; by skilled mechanics—and may therefore be depended upon to give years of carefree service.

¶ it is a profitable investment for the user because it burns the cheaper grades of coal; insures adequate heat or power within its rated capacities; prevents waste in fuel; meets smoke ordinance requirements.

¶ it is so constructed, designed and installed as to eliminate excessive service and repair expense.

¶ it provides me, as dealer, an unusually desirable margin of profit.

« « « —————— » » »

A liberal franchise and exclusive territory is available in many parts of the country for aggressive, responsible firms or individuals.

Learn today if your territory is open.

COMBUSTIONEER, INC.
SPRINGFIELD OHIO

COMBUSTIONEER AUTOMATIC COAL BURNERS

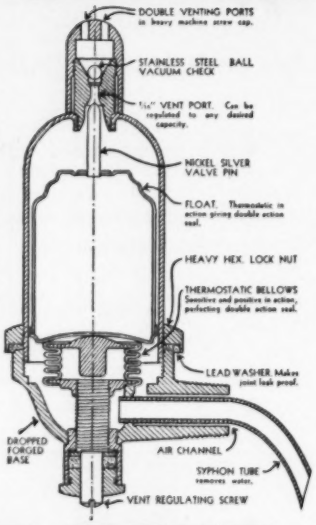
BALANCED RADIATION BECOMES A FACT!

Now Possible—

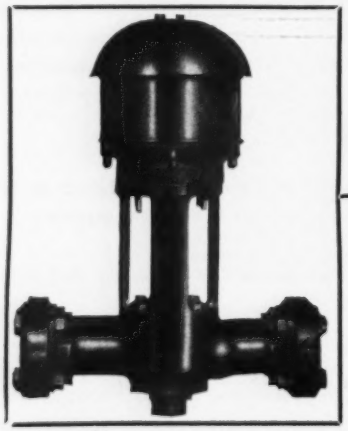
a correctly balanced heating system! Equipped with an air venting adjustment, VENT-RITE valves can be set to meet the requirements of the individual radiator—accomplishing *any desired room temperature.* The *only* air valve with adjustable venting capacity, regulated to take into consideration the distance steam must travel from the boiler. With VENT-RITE valves *every radiator in the house* starts to heat the moment steam enters the system and *Balanced Radiation becomes a fact!*

Write today for descriptive literature.

ANDERSON MFG. CO.
Cambridge, Mass.


DOUBLE VENTING PORTS in heavy machine screw cap.
STAINLESS STEEL BALL VACUUM CHECK
VENT PORT. Can be regulated to any desired capacity.
NICKEL SILVER VALVE PIN
FLOAT. Thermostatic in action giving double action seal.
HEAVY HEX. LOCK NUT
THERMOSTATIC BELLOWS Sensitive and positive in action, perfecting double action seal.
LEAD WASHER Makes joint leak proof.
DROPPED FORGED BASE
AIR CHANNEL
SYPHON TUBE removes water.
VENT REGULATING SCREW

VENT·RITE
(CONTROLLED VENTING)
RADIATOR AIR VALVES



The HYDROLATOR

Getting Set for Winter

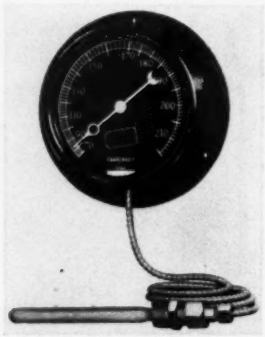
After 3 or 4 depression years with no repairs at all thousands of *hot water heating systems* are in bad shape—they need a HYDROLATOR. Homeowners have a little more money than before, and a lot more confidence. Maybe you can't sell 'em a complete new heating plant but you can easily put over a HYDROLATOR deal. They don't cost much—and besides the homeowner gets it all back anyway in fuel savings.

Your customers don't want to freeze through another winter with a "sick" hot water system. And they won't freeze either if you'll just tell 'em about the HYDROLATOR.

Write for Complete Information

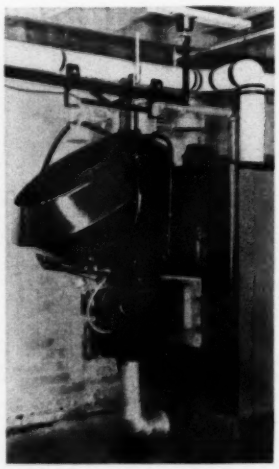
JANETTE MANUFACTURING COMPANY
560-62 West Monroe Street
Chicago, Illinois

C. J. Tagliabue Mfg. Company, Park and Nostrand Avenues, Brooklyn, New York, is the manufacturer.



An Overfeed Coal Stoker

This overfeed coal stoker supplies coal in small quantities by means of a specially designed spreader roll which turns at high speed in the throat of the machine. At the same time the correct supply of free air is designed to be fed under the grates by the blower shown in the accompanying illustration. The stoker is built to take care of houses up to 12 rooms or radiation approximating

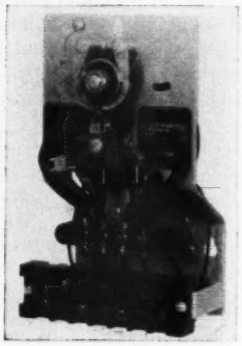


15000 sq. ft. It is for use with any good grade of coal furnished in proper sizes. The Howe Scale Company, 746 Superior Avenue, N. W., Cleveland, Ohio, is the manufacturer.

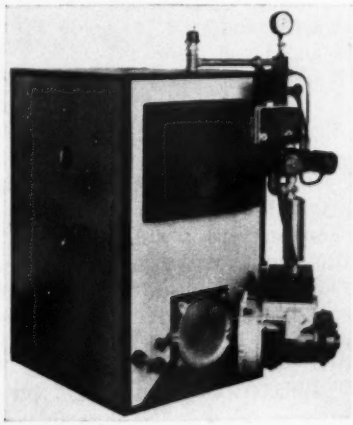
Control for Domestic Stokers

This multispeed stoker control operates in conjunction with any three wire thermostat to serve two functions; first, the maintenance of a fire at an even level to provide just enough heat to compensate for losses from the rooms being heated and second to guard against failure of the fire in mild weather. While time is the

basis for its operation, it is not strictly a timer, for the period between firings, is automatically varied between, say a maximum of 60 minutes to a minimum of 20 minutes. And, the length of the firing period may be



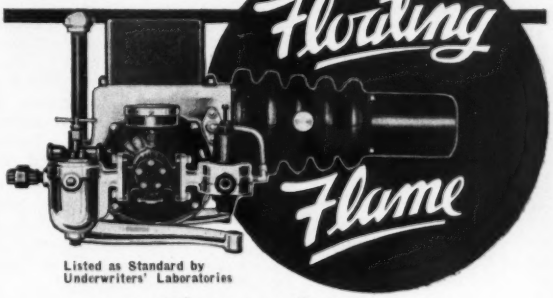
anywhere from one minute to 20 minutes or longer. The control acts to provide a minimum rate of fuel feeding during extremely mild weather so long as the thermostat blade is touching the hot contact. The voltage in the thermostat circuit is about 2 volts with a small fraction of an ampere. Leland Electric Co., 1501 Webster Avenue, Dayton, Ohio, is the maker.



An Oil Burner and Boiler Assembly

This oil burner and boiler assembly which just recently has been announced has a number of outstanding features listed in its favor. The accompanying illustration shows a rear view of the equipment with the burner attached directly to the back of the boiler by means of a hinge. The boiler is described as having a long flue travel, four passes, one under each crown sheet, and a large heating surface. The smoke box has been made adjustable for direct or down draft. Insulation is provided on four sides and top. It is for furnishing domestic hot water all year. The size range varies to take care of heat requirements from 5 to 20 rooms. Sharp and Van Fleet Mfg. Co., Inc., 285 E. Blackwell Street, Dover, New Jersey, is the manufacturer.

Only CENTURY offers YOU Floating Flame



Listed as Standard by Underwriters' Laboratories

Cleaner - Quieter
More Economical

The story of Century Automatic Oil Heat with Floating Flame has swept the entire oil burner industry . . increased sales and profits for dealers by leaps and bounds.

In the Model 1-F Supreme, Floating Flame has been developed to its highest efficiency. The exclusive Century Silencer Manifold muffles all sound of combustion . . even the clicking of ignition sparks. There's no vibration. The entire burner is mounted in rubber. Then remember, every unit is Factory Tested before shipment to insure its perfection and performance.

NRA MEMBER U.S. WE DO OUR PART

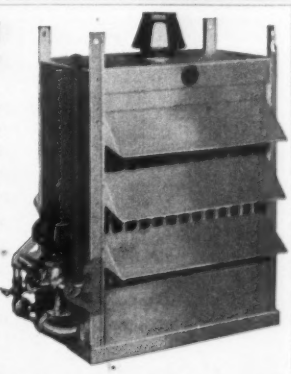
Get into the oil burner business now—America's newest and biggest money field. These exclusive Century features . . dramatic, practical, money-saving will win you more sales and more profits. Send now for specifications, discounts, and the money-making sales plan. Special offer open. CENTURY ENGINEERING CORP., Dept. D-10, Cedar Rapids, Iowa.

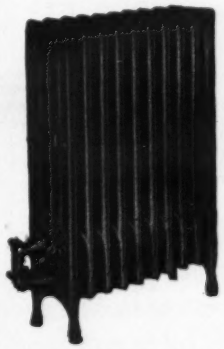
CENTURY OIL BURNER Floating Flame

LISTED AS STANDARD BY UNDERWRITERS' LABORATORIES

The PITTSBURGH GAS FIRED UNIT

Pittsburgh Gas Unit Heaters are simple and easy to install. AUTOMATIC in operation and heat is paid for as and when it is really needed. No waste—no dirt—no delays caused by fuel tie-ups. And Pittsburgh Gas Unit Heaters can be used for heating, ventilating, cooling and drying.





AUTOMATIC GAS-STEAM RADIATORS

can be used, either as part of the regular heating system or as a separate complete heating unit that will supply just the amount of heat required during unseasonal weather. Simple and economical—easy to install and operate. Automatic Gas Steam Radiators are real business builders.

Approved by the Testing Laboratory of the American Gas Association

AUTOMATIC GAS-STEAM RADIATOR CO.
BRUSHTON & THOMAS STS. PITTSBURGH

N.R.A. assures NU-WAY Dealers
The PROFITS We Have Advocated

Nu-Way stands—and always has stood for factory-to-dealer and dealer-to-consumer sales. Nu-Way always has fought for protection of Dealers' sales rights and against catalog or factory selling. Nu-Way long has pioneered in efforts to set up a code of fair business practice that would insure the Dealer a real profit.

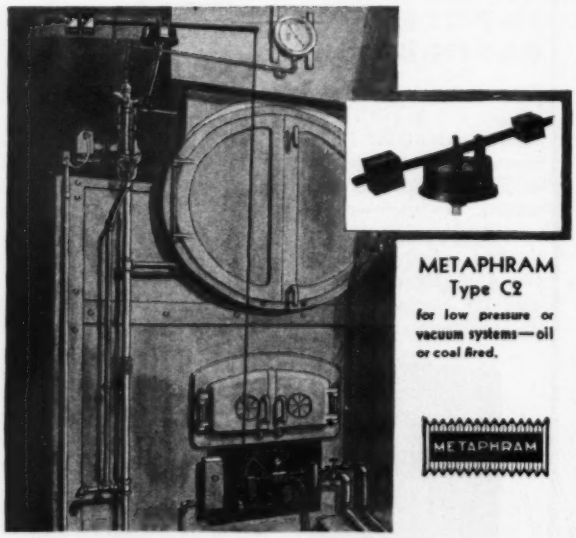
Nu-Way strongly favors N. R. A. and the oil burner code because we believe it will eliminate price chiseling and make the product, its manufacturer and its dealer the deciding factor in each sale. Under the code, which prohibits selling below standard reasonable cost, the price a Nu-Way Dealer asks for the Nu-Way—a seasoned product of quality, backed by more than a decade of experience in manufacturing oil burners exclusively—is but a few dollars more than the price a Dealer must ask for an untried, unknown product. No longer do Nu-Way Dealers face the menace of price selling. N. R. A. assures Nu-Way Dealers the better profits for which we have always fought.

Real Sales Helps

We offer sales helps unsurpassed in the industry: retail salesman's presentation kit; salesman's training manual; merchandising manual; newspaper mat service; literature, window displays, direct mail campaigns. Write for more details on our line and our policies.

THE NU-WAY CORPORATION
Rock Island, Illinois

"Nu-way" Genii AUTOMATIC OIL BURNER



METAPHRAM Type C2
for low pressure or vacuum systems—oil or coal fired.

METAPHRAM

METAPHRAM Gradual Control
covers the entire range of domestic hot water and low pressure boilers and tank heaters, either gas, oil or coal fired.

Descriptive Bulletins on Request

NATIONAL REGULATOR CO.
2317 KNOX AVENUE CHICAGO

Coal—Oil—Gas—

(Continued from page 70)

Applying the above formula by means of the "Heating Cost Chart," heating values are found on the scales at the extreme left, for wood in Btu per cord, coal in Btu per pound, oil in Btu per gallon, and gas in Btu per cubic foot. On scale 2 are found, at the left, prices in dollars of wood per cord, coal per ton, and gas per thousand cubic feet; and at the right, of oil in cents per gallon.

Aligning values on these two scales gives intercepts on scale 5, reading price per million Btu in the fuel.

The overall efficiency of the heating plant located on scale 4 is aligned with price per million Btu on scale 5 to intercept scale 7, reading cost per million Btu of delivered heat.

Now design temperature difference on scale 3 is aligned with the computed heat loss of the building in Btu per hour on scale 6, and the heat transmission index is read on scale 9.

HOW THE CHART WORKS

This index is now aligned with the cost of fuel per unit of delivered heat as obtained on scale 7, to read the cost per degree day on scale 8. This aligned with the seasonal heating coefficient in degree days on scale 11 intercepts scale 10 to read seasonal heating cost in dollars.

Consulting the key in the upper left hand corner of the chart, we may codify the steps required thus:

(1) Align 1 and 2 and read (or hold) 5;
(2) Align 4 and 5 and read 7;
(3) Align 3 and 6 and read (or hold) 9;
(4) Align 7 and 9 and read (or hold) 8; and
(5) Align 8 and 11 and read 10, the seasonal heating cost.

Taking a concrete example, assume the heating value of oil at 140,000 Btu per gallon, the price at 5 cents per gallon, efficiency at 60 per cent, heat loss of the building at 90,000 Btu per hour, design temperature difference at 70 deg. Fahr., and seasonal heating coefficient at 4800 degree days, and that it is required to know the seasonal heating cost.

On the first scale, middle section, locate the heating value of oil, 140,000; and on the right side of scale 2 locate the price of oil, 5 cents; then align these to obtain a point on scale 5. Holding this point and aligning it with the efficiency on scale 4, 60 per cent; read the cost per million Btu of delivered heat on scale 7; namely $0.59½.

Now locate the design temperature difference, 70 deg., on scale 3 and align this with the heat loss, 90,000 Btu per hour, on scale 6, holding the point obtained on scale 9. Align this point now with $0.59½ obtained on scale 7 and hold the point thus found on scale 8. This point aligned with the seasonal heating coefficient, 4800, on scale 11, intercepts scale 10 at $88.40, the seasonal heating cost.

In making a comparison of the cost of using different fuels in any heating system or any class of heating systems, scales 1, 2, 4, 5, and 7 are used.

Say, we wish to know the price of 1000-Btu per cu. ft. natural gas used in a system 70 per cent efficient, which will be equal in operating cost to a 6-cent per gallon,

140,000-Btu per gallon oil burned in a system 60 per cent efficient.

Align 140,000 on the section giving heating values of oil on the first scale, with 6 cents per gallon on the right hand side of scale 2, obtaining a point on scale 5; align this point with 60 per cent, the efficiency on oil, on scale 4 and obtain a point on or read scale 7; this point aligned with 70 per cent, the efficiency on gas, on scale 4 will give a point on scale 5, which, aligned with 1000 on the lower section of the first scale, the heating value of the gas in question, will intercept scale 2 at $0.50, which is the price the gas must be to be equal in heating cost to 6-cent oil in this particular comparison. If the price of gas is actually 75 cents per thousand cubic feet, then the relation of the cost of oil and gas at the prescribed conditions is 50 to 75 or oil heating is one-third less.

A convenient table of heating values of fuels, taken from selected sources, is given below. The heating values of all fuels are subject to certain variations; in coal, with the particular portion of a mine or field; in natural gas, with the field; in manufactured gas, with each unit of manufacture; etc. Probably the least variation, however, is in manufactured gas, which is required to be held within narrow limits. If calculations are made on the basis of gas fuels, inquiry should be made at the local gas plant as to the heating value which is maintained.

HEATING VALUES OF FUELS

Coal—Btu per pound

Pennsylvania Anthracite—	
Lehigh valley	12,640
Treverton	14,025
Average	12,472
Colorado Anthracite—	
Crested Butte, No. 1 bed	14,503
Florests, Ruby mine	13,920
Somerset	12,807
New Mexico Anthracite—	
Madrid, White Ash bed	14,071
Rhode Island—	
Portsmouth, "Middle" 6-ft. bed	10,737
Alabama—Average	14,000
Warrior, Jefferson bed	15,150
Coal valley	12,880
Arkansas—Average	14,140
Colorado—Average	12,700
Illinois—Average	12,500
Indiana—Average	13,300
Clinton, No. 4 bed	11,330
Iowa—Average	12,800
Kansas—Average	12,300
West Mineral	13,400
Kentucky—Average	14,400
Sturgis	12,720
Maryland—Average	14,100
Michigan—	
Saginaw	13,370
Missouri—Average	12,500
Montana—Average	11,700
Belt	10,890
New Mexico—Average	13,000
North Dakota—Average	10,800
Ohio—Average	13,300
Oklahoma—Average	13,500

FALL
and the time is here to install
EXCELSO
FIRE POT GENERATORS
FIN PIN HEATERS
PHAETON HEATERS
ALSO
EXCELSO INDIRECT WATER HEATERS
A type and size of Heater for every Boiler or Furnace
EXCELSO PRODUCTS CORP.
57 Clyde Avenue Buffalo, N. Y.
or
Ask Your Jobber

Saves the Dollars that Now Go Up the Flue

The HOTSTREAM DRAFT-O-STAT

Listed as standard by Underwriters Laboratories

Automatically Controls Chimney Drafts in Oil, Gas and Coal Fired Furnaces

Prevents excessive drafts—permits day in and day out operation at peak efficiency.

Use one on every installation to assure the utmost in economy and satisfactory service. Made in a complete range of sizes.

Write us for Complete Information and Discounts to Dealers

THE HOTSTREAM HEATER COMPANY
"Makers of Heaters that Heat"
CLEVELAND OHIO

NRA
WE DO OUR PART

HI-TEMP
ONE PIECE WATER COIL

REAL PROFITS
for
AUTOMATIC HEAT
DEALERS

Greater hot water supply
Faster flow
Longer life
Most economical

These are the features of the HI-TEMP Hot Water Coil that are most interesting to your customers. These are the features that enable you to sell the HI-TEMP almost on sight.

Save money for your customers. Build up more business for yourself. Install HI-TEMP in conjunction with instantaneous storage heaters which will save customers as much as seven months gas bill, because as long as there is a furnace fire, there is abundant hot water supply without the use of gas.

Write for literature and prices. Also, territory open for representatives.

PRODUCTION PLATING WORKS, INC.
LEBANON, OHIO

WAYNE MODEL S4

ONE
GALLON PER HOUR
UP TO EIGHT
GALLONS PER HOUR IS THE
RANGE OF THE WAYNE S-4 ●

●WHY carry a big floor stock of various sizes of burners when the Wayne Universal Model S-4 will take care of any domestic boiler, furnace or heating plant in your territory? It eliminates all other sizes. It cuts down your investment in display stock and permits you to concentrate your effort in doing a real job selling just one burner. It burns lowest price oil. *Write today for bulletin and details of the Wayne Plan.*

Wayne Oil Burner Corporation
602 Glasgow Ave. *Fort Wayne, Ind.*

Pennsylvania—Average	14,200
Tennessee—Average	14,200
Texas—Average	10,600
Eagle Pass	9,200
Utah—Average	13,000
Thompson	11,320
Virginia—Average	14,800
Washington—Average	13,100
West Virginia—Average	14,500
Wyoming—Average	12,600

Oil—Btu per gallon

No. 1—Light domestic fuel oil	36–40°API	136,000
2—Medium domestic fuel oil	32–36	138,500
3—Heavy domestic fuel oil	28–32	141,000
4—Light industrial oil	24–28	145,000
5—Medium industrial oil	18–24	149,000
Crude Oils—		
California	22.8	144,000
Kansas	22.0	147,000
Mexican	13.6	152,000
Oklahoma	31.3	141,000
Pennsylvania	42.6	132,000
Texas	30.2	142,000
Wyoming	31.5	141,000

Gas—Btu per cu. ft.

Manufactured gases—	
Coal gas	634
Coke Oven gas	536
	600
Blue Water gas	310
Carburetted Water gas	578
Oil gas	516
Natural Gases—	
Arkansas	1,000
California	1,053
Illinois	1,505
Indiana	984
Kansas	988
Kentucky	1,139
Louisiana	973
Missouri—Jasper county	1,008
New York—Allegany county	1,264
Genessee county	1,045
Ohio—Erie county	1,062
Oklahoma—Nowata	959
Washington	1,064
Pennsylvania—Blair county	1,065
McKean county	1,505
Texas—Novarro county	988
Tarrant county	698
West Virginia—Marion county	1,126

Wood—Million Btu per cord

Ash	20.9
Beech	20.9
Birch	20.9
Chestnut	15.6
Elm	17.7
Hickory	24.8
Maple	19.1
Oak	23.9
Pine, Yellow	22.0
White	14.2
Spruce, Engleman	13.3
Sitka	14.9
Fir, White	14.3
Noble	15.3
Douglas	17.8
Yew	24.6

Roosevelt Approves Price Control Plan for Oil Burner Industry

Setting up eleven regulations of fair practice, establishing a code authority as an all-industry court of review and calling for the establishment of a uniform system of cost accounting, the code of fair competition approved for the oil burner industry by the NRA outlaws the practice of selling or exchanging any product or service at a price level below actual cost, according to Morgan J. Hammers, president of the American Oil Burner Association, who has just received the first copies of the oil burner code as signed by President Roosevelt.

Owing to the fact that the peak season is immediately upon the industry, and so that the oil burner industry may start operating under the code without delay, it became effective on Sept. 25.

Discuss Selling Plans at Gas Convention

Combining an "international gas conference" and the 15th annual convention of the American Gas Association, members of the utility industry met at the Stevens Hotel in Chicago from September 25 to 29.

The meetings of the "commercial section," which has to do with the development of new business, were held on Tuesday and Wednesday afternoons, under the chairmanship of Walter C. Beckjord, Boston Consolidated Gas Co., Boston, Mass.

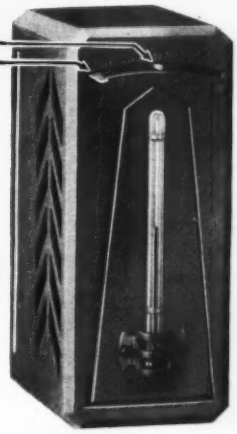
The feature of the Tuesday afternoon session was a play in six scenes, depicting the selling job to be done in convincing a home owner that his kitchen should be remodeled. Starting with old-fashioned equipment, the play progressed through the six scenes, showing a step by step modernizing job until the home owner enjoyed a completely modern, all gas kitchen. This was followed by a symposium, seven members of the industry summing up what had been done.

On Wednesday, the subjects covered involved the dealer co-operation angle. The general sentiment was expressed by one speaker when he said that the utilities needed more sales allies. F. M. Banks of the Southern California Gas Co. told of the tie-up with dealers for the sale of gas refrigeration, and Morse DellPlain, president of the Northern Indiana Public Service Co., made a vigorous presentation of the fact that the factor in utility merchandising which has caused dealers to complain was the method of paying utility salesmen. The methods used in the past, he said, forced the utility salesman into competition with the dealer, instead of being so established as to make co-operation with the dealer the logical thing for him to undertake. He urged that the salesmen's records be judged upon the amount of gas load added to the line.

The final speaker of the day, Paul A. Jenkins, assistant campaign manager of the house heating program now being carried on in Chicago, described the procedure being followed which has made possible the sale of one hundred sixty-five heating jobs a day. The dealer figures also in this campaign.

The New York offices of the Air Conditioning Department of the General Electric Co. of Schenectady, N. Y., have been moved from 120 Broadway to the General Electric building at 570 Lexington avenue, New York City.

MERCOID
DUAL SENSATHERM
FOR HEATING
AND COOLING
AIR CONDITIONING CONTROL



This instrument combines two thermostatic units with separate circuits in one control.

Used for domestic and industrial heating and cooling.

Neat and compact in appearance. Mercury contact switches used throughout, thus assuring dependable operation.

Other Sensatherms available for all types of room temperature control.

Write for Bulletin No. 100

THE MERCOID CORPORATION

Sole Manufacturers of the Mercoid Switch

4221 Belmont Avenue -:- Chicago, Illinois

Domestic Hot Water

(INDIRECT TYPE)

CONTROLLED TEMPERATURE
IN STORAGE TANKS ON
STEAM HEATING BOILERS

No More Trapped Circulation

The Johanson double circulator for steam heating plants makes possible a water heating job giving 100% efficient operation. Circulation of the boiler water and of the domestic water in the storage tank are both through the water heater, and both made possible with one small motor.

Because of this positive circulation the storage tank can be below the heater and pipe can be placed in almost any position, yet trapping of circulation is impossible.

This system assure 100% efficient operation on indirect type water heaters. With this double circulation the temperature of the domestic hot water in the storage tank is completely controlled.

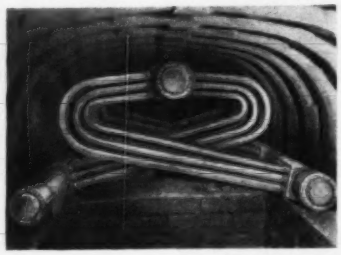
Ask us also for information on the double circulator for Johanson 3-Way hot water heating system.

NRA WE DO OUR PART

JOHANSON WATER HEATER CO.

1239 FULLERTON AVENUE, CHICAGO, ILL.

AMERICAN HEAT SAVER



ADDS PRIME HEATING SURFACE

RESTORES BOILER EFFICIENCY FOR OIL BURNING

•

PROVIDES INSTANT STEAMING

•

REMARKABLE SAVING IN FUEL

•

1933 DEAL FOR DEALERS

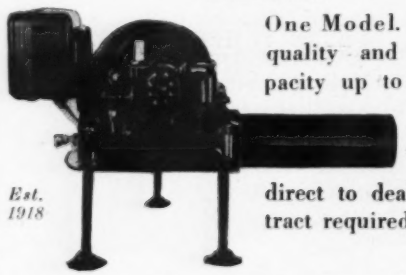
•

AMERICAN HEAT SAVER CORP.

Tax Service Bldg., Broad and Diamond Sts., Philadelphia, Penna. Factory—Springfield, N. J.

The Fairfield Oil Burner

NRA Member



One Model. Featuring quality and flexible capacity up to 3000′ steam radiation. Lowest price. Sold direct to dealer—No contract required.

Est. 1918

Greenwich, Conn.

WE DO OUR PART

"Air Conditioning for Comfort"

By Samuel R. Lewis

was published during the depression, and has sold right through it—because dealers recognized it immediately as the only book of its kind, packed with authoritative information on every phase of this new industry. Full details on figuring and designing for cooling, heating, humidifying, dehumidifying, cleaning and circulating the air. The book sells for $2.

DOMESTIC ENGINEERING

1900 PRAIRIE AVE. CHICAGO, ILL.

Williams Oil-O-Matic Heating Corp. Reports Great Increase in Business

"The new deal helps those that help themselves" is the sentiment expressed by officials of the Williams Oil-O-Matic Heating Corporation of Bloomington, Ill. Its dealers' unit sales for the month of August produced a 127.5% increase over July, 1933. August, 1933, likewise showed a 48.08% increase over the corresponding month of last year. Orders booked by the factory for immediate shipment indicate that September will be right in line with a greater volume than September, 1932.

This was the meat of an optimistic business report issued by C. U. Williams, president of the Williams Oil-O-Matic Heating Corporation, manufacturers of Oil-O-Matic oil burners and Ice-O-Matic electric refrigeration.

Mr. Williams, who maintains a close personal contact with his concern's business throughout the country, summarizes his view as follows:

"Our sales increases have been realized with vigorous application of the following prime factors in merchandising success: (1) Additional man power has intensified the sales activity of Oil-O-Matic dealers in all of our major markets. (2) Each of our dealers is being sold on the idea of augmenting his sales force in line with market potentialities."

The Williams organization accepts the favorable showing of the past few months as a healthy sign that there is still a premium on the aggressiveness we all regard as so typically American.

Figures on a national Oil-O-Matic campaign concluded during August are heartening in their proof that its success is not spotty but nation-wide.

"With two months of the National Recovery Act in back of us, it is evident," continues Mr. Williams, "that the NRA is a road which we all should travel, rather than a vehicle in which we all may ride. The NRA is helping establish confidence in the public mind, giving a background for all activity. But to realize most on this condition, each and every industry and its members must put their shoulders to the wheel."

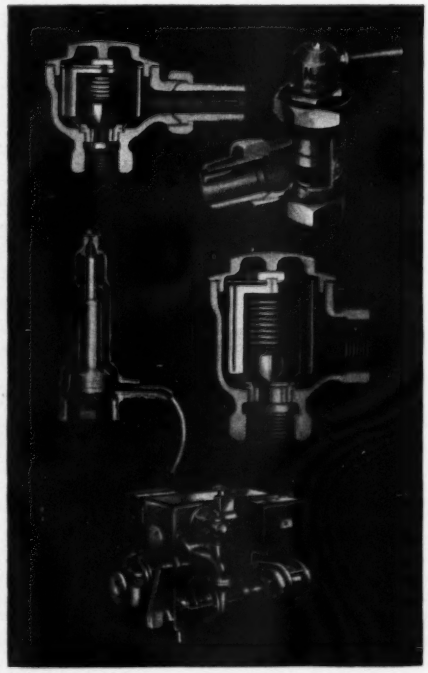
The Williams Oil-O-Matic Heating Corporation anticipated the NRA code as early as July 14, when the 40 hour week and a ten per cent wage increase were declared in effect throughout the plant.

At the time of entering the NRA agreement the Williams factory force totaled 208. Now there are 354 men on the pay roll or an increase of about 58 per cent. Most Williams shop departments are operating on a two-shift basis, with three required in some.

The NRA code is instrumental in this increased employment. It means added numbers in the ranks of the nation's buyers. This new purchasing power is helping speed industry still further along in its welcome comeback and its steady march toward ultimate victory.

M. Edgar Yeager has been appointed New England district manager of stoker sales for the Patterson Foundry & Machine Company of East Liverpool, Ohio. Mr. Yeager has had more than twenty years' experience in the stoker field with the American Engineering Company, Westinghouse Electric & Manufacturing Company and Combustion Engineering Corporation. He will make his headquarters at Room 726, Chamber of Commerce Building, Boston, Mass.

Under the NRA PROFIT more than ever depends on EFFICIENCY



In Hoffman Heating Equipment is that ultimate degree of service which spells true economy

The NRA Code places a new significance upon the word "efficiency." Old standards no longer apply. With shortened hours for men and machines, operations of all kinds must reach new peaks.

In no place is modernization of equipment more necessary than in many of today's steam heating plants . . . both for residential and industrial operation. Obsolete systems are viciously absorbing possible profits. Now is the time to revamp and replace.

Mere modernization is not enough. But modernization with careful selection of the equipment employed, will repay the initial investment many times over. Available records of savings prove it.

Hoffman's complete line offers a thoroughly dependable source of heating specialties. In its long list of exclusive patents, basic improvements and methods of precision manufacture, is comforting assurance that wherever Hoffman Specialties are installed, dollar-saving efficiency is certain. Over extended periods Hoffman Specialties cost less, while giving unqualified satisfaction.

Familiarize yourself with the performance of Hoffman Products —sold by leading wholesalers of heating equipment everywhere. Send the coupon for any or all of the illustrated bulletins descriptive of Hoffman Valves, Traps and Pumps. Hoffman Specialty Company, Inc., Dept. RX-91, Waterbury, Conn.

HOFFMAN SPECIALTY CO., INC.

Hoffman Specialty Company, Inc., Dept. RX-91
Waterbury, Conn.

Gentlemen: Please send me, as checked below, bulletins containing full information and engineering data on Hoffman Products.

☐ Venting Valves ☐ Traps ☐ Pumps

Name .....

Address .....

More

McDonnell Boiler Water Level Controls are being installed this Fall *than ever before*

WHY? **There are three distinct reasons for the unprecedented growth of McDonnell sales—three reasons that every heating contractor should consider:**

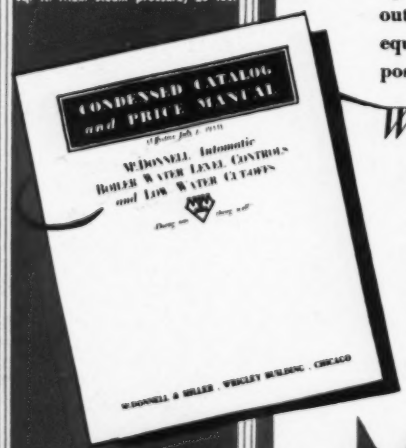
The first reason is the sweeping acceptance of boiler water level control—an acceptance that has reached unprecedented proportions in the past year. The boiler insurance companies are recommending water level control for all automatic jobs. The A. S. M. E. boiler code is being revised to include it. The Underwriters are pushing it. Further weight has been given to the case by the endorsement of boiler and boiler-burner manufacturers. The McDonnell Boiler water level control is today used as standard equipment by Timken, Torridheet, Fluid Heat, Silent Glow, and many other great names in the boiler-burner field.

The second reason is that thousands of McDonnell Boiler Water Level Controls in service have demonstrated the dependability of the cool feed-valve and other advanced features that have been evolved during the last four years. Contractors have found that there is a McDonnell Safety Feeder, Low Water Cut-off, or combined Feeder and Cut-off that will meet the needs of any size or make of boiler, hand-fired, oil-fired, stoker-fired or gas-fired.

The third reason is that the McDonnell organization co-operates with the contractors who want to make extra profits out of feeder sales—by standing squarely behind McDonnell equipment—by supplying circular letters, envelope stuffers, posters and other effective sales aids.

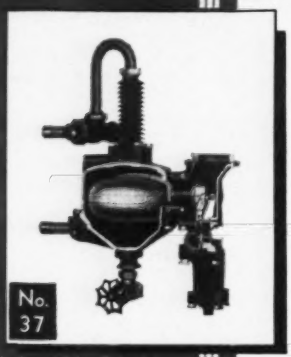
Write for this new, condensed catalog and price manual

You are right at the threshold of the big season for McDonnell sales. The business is there, proved by the fact that contractors are making more installations than ever before. Today is the day to write for the handy condensed catalog and go after water level control business while it is *there*.

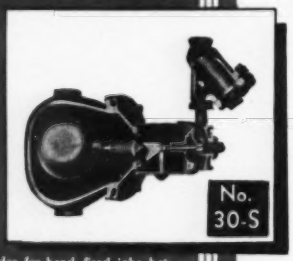
McDONNELL & MILLER, 1306 Wrigley Bldg., Chicago, Ill.

McDONNELL
Boiler Water Level CONTROL

"Doing One Thing Well"

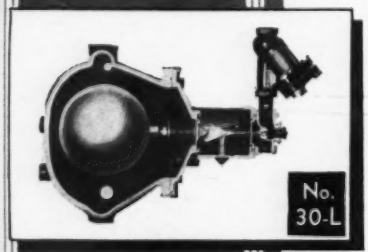
For HAND-FIRED JOBS



Feeder for quick installation in gauge-glass tappings of hand-fired jobs below 2500 sq. ft. Max. steam pressure, 15 lbs.

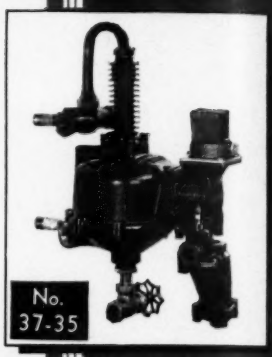


Feeder for hand-fired jobs between 2500 and 5000 sq. ft. Max. steam pressure, 15 lbs.



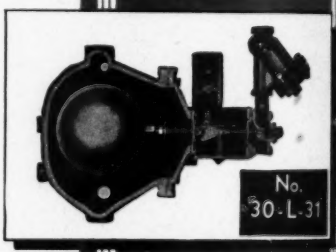
Feeder for hand-fired jobs above 5000 sq. ft. Max. steam pressure, 25 lbs.

For AUTOMATIC JOBS

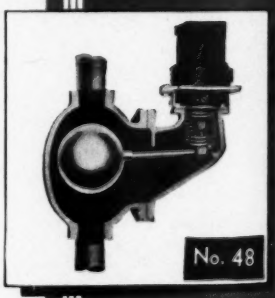


Feeder and Cut-off combined for automatic jobs below 2500 sq. ft. max. steam pressure, 15 lbs.

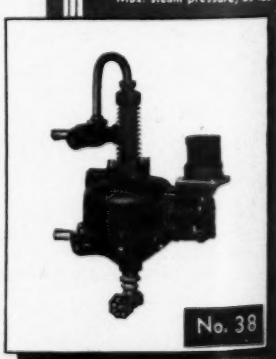
Combined feeder and Cut-off for automatic jobs from 2500 to 5000 sq. ft. max. steam pressure, 15 lbs.



Combined Feeder and Cut-off for automatic jobs above 5000 sq. ft. max. steam pressure, 25 lbs.



Cut-off for automatic jobs of any size. Max. steam pressure, 25 lbs.



Cut-off for quick installation in gauge-glass tappings. Max. steam pressure, 15 lbs.

SUPPLY NEWS

Month's Developments among Manufacturers, Wholesalers and Salesmen in All Sections

Central and Eastern Supply Associations Will Meet October 25 and 26

The 39th annual meeting of the Central Supply Association will be held at the Palmer House, Chicago, October 25 and 26, and the Eastern Supply Association will meet on the same dates at Hotel Astor in New York City. The programs will be built around the wholesalers' code and that portion of the codes of manufacturers of our industry which directly affect the interests of wholesalers and their plumbing and heating contractor customers.

Saltser & Weinsier, Inc., Open New Branch

Saltser & Weinsier, Inc., 173-199 Cook street, Brooklyn, N. Y., have just opened a new branch at 317 Atlantic avenue in that city. Plumbing and heating supplies and specialties will be carried at this branch.

Streamline Pipe & Fittings Co. Is Organized

The Streamline Pipe & Fittings Co. has just been organized as a division of Mueller Brass Co. of Port Huron, Mich., to facilitate the handling of sales. This sales organization will consist of the same personnel as heretofore and will sell and distribute streamline products of the Mueller Brass Co.

Starts New Business in Brooklyn

The Central Plumbing, Heating & Supply Corporation is the name of a new concern, which has started in business at 166 Central avenue, Brooklyn, N. Y. The buyers for the new company are J. A. Gravitz and M. I. Horr.

Succeeded by Delaware Valley Supply Co.

The G. & H. Supply Co. of Trenton, N. J., has been succeeded by the Delaware Valley Supply Co. of Trenton, N. J. The officers of the latter company are: H. L. Leitch, president; H. P. French, treasurer, and L. N. Harris, secretary.

M. Shaftel Succeeds Shaftel & Shipp

The partnership of Shaftel & Shipp at 18 Cook street, Brooklyn, N. Y., has been dissolved, and the business will be continued by one of the partners, M. Shaftel, under his own name, at 10 Cook street, Brooklyn, N. Y.

Moves from Lindenhurst to Sayville, L. I.

J. R. S. Specialties Mfg. Co., Inc., 74 East Hoffman avenue, Lindenhurst, Long Island, N. Y., announces the removal of its plant and general offices from that address to Sayville, Long Island.

Study Plan for National Federation of Wholesalers

A national federation of supply wholesalers has been proposed to succeed the joint national committee which has been handling code activities. Various associations of wholesalers from all over the country have appointed committees to study this proposal to establish a national federation. The subject was discussed at a joint meeting in Washington during the last days of September.

National Association for Better Housing to Hold Organization Convention

The National Association for Better Housing will hold its organization convention at the Union League Club in Chicago on October 31 and November 1. In announcing this meeting, J. Soule Warterfield, vice president of the Starrett Building Company and chairman of the organization committee of this association, said: "A concerted effort will be made to obtain favorable concessions for the home owner under the National Recovery Act. My recent observations in Washington indicate that the administration will doubtless make favorable financial concessions to aid home building projects, and a unified recommendation by the National Association for Better Housing as to conditions and policies would be received with favor at the capital.

"Simplification and waste elimination along the line in housing—construction finance and sales—will be a principal field of activity for the association."

Among the leaders in the plumbing and heating industry, who are serving on the organization committee, are: Walter J. Kohler, president of Kohler Co., Kohler, Wis.; James S. Adams, vice president of Johns-Manvile Corporation, New York City; C. J. Bassler, president of Air Conditioning Corporation, Chicago; Chas. K. Foster, executive vice president of American Radiator Company, Chicago, and H. W. Seymour, vice president of Crane Company of Chicago.

Peck Bros. & Co. in Voluntary Receivership

Henry E. Coe has been appointed temporary receiver for the Peck Bros. & Company of New Haven, Conn., by Judge F. P. McAvoy of the Superior Court, following an application to the court for voluntary receivership, pursuant to a vote of the stockholders and directors. The July 1 inventory, this year, showed assets in excess of $500,000 and total liabilities of approximately $30,000. It is therefore assumed that all creditors will be paid in full. Plans are being made for the reorganization of the company.

The receiver, Henry E. Coe, announces that he will continue to represent the Sloan Valve Company of Chicago and the International Nickel Company of New York City as heretofore.

National Brass Association Holds Annual Meeting

The National Brass Association which was organized at Columbus, Ohio, September 8, 1932, held its annual meeting at the Hollenden Hotel in Cleveland, Ohio, on September 21.

Reports by various officers and committee men indicated that the Association had made considerable progress in the past year, which ended with a membership of thirty-two manufacturers of plumbers' cast brass products.

The officers and executive committee elected for the ensuing year follow: President, L. J. Laroche; vice president, E. A. Eckhouse, and treasurer, W. J. Street. The Executive Committee: The officers and A. H. Warner, Jr., and S. L. Fisher.

F. S. Jefferies was reappointed secretary and the offices of the association will remain at 176 West Adams Street, Chicago, Ill.

The association paid tribute to its retiring president, George A. Harper of the Burlington Brass Works, Burlington, Wis.

Form New Wholesaler Association

The plumbing and heating supply wholesalers in the Philadelphia district, including eastern Pennsylvania, southern New Jersey and Delaware, have formed the Tri-State Plumbing & Heating Wholesalers Association, which will take over the handling of details in connection with the code of fair competition being sought by the wholesalers. The following officers and directors have been elected: M. D. Robinson, Crane Co., president; Conrad E. Muhly, Conrad E. Muhly, Inc., vice-president; H. R. Rinehart, secretary, and J. Harvey Borton, Hajoca Corporation, treasurer. Howard L. Murray, H. Belfield Company; J. J. McArdle, McArdle & Cooney, Inc.; David Schrull, George Orlowitz; Edward Fisher, Fisher Brothers; Harold Deacon, J. D. Johnson Co., Inc., and H. J. Bailey, Desco Corp., Wilmington, Del., comprise the directors.

Central West Wholesalers Form Association

The Central Western Wholesalers Association was organized on Sept. 27 at Des Moines, Iowa, following preliminary meetings held in its territory for several weeks previously. This new association expects to include in its membership wholesalers from Minnesota, North and South Dakota, Iowa, Nebraska, Kansas and portions of Missouri, Wisconsin, Montana, Wyoming and Colorado.

E. I. Leighton, head of the Leighton Supply Co. of Fort Dodge, Iowa, is the president of this new association. Bernard Kurtz of the L. H. Kurtz Co., Des Moines, Iowa, is vice president. D. R. Thomas of Minneapolis who for many years has been secretary of the Central Western Credit Exchange is secretary. The executive committee includes E. I. Leighton, chairman; John McDonald, Jr., A. Y. McDonald Co., Dubuque, Iowa; George Collins, Crane Co., Davenport, Iowa; Ray Chandler, Chandler Co., Cedar Rapids, Iowa; C. W. Holstrom, Globe Machinery & Supply Co., Des Moines, Iowa, Ben Waldt, L. H. Kurtz Co., Des Moines, Iowa. Advisory members are: Fred Kretschmer, Kretschmer-Tredway Co., Dubuque, Iowa, and G. A. Rodgers, Beckman Bros., Des Moines, Iowa.

Among the charter members are several whose aggressive work for the industry has brought them local and national recognition, such as F. W. Swanson of the Globe Machinery & Supply Co., Des Moines, former president of the Central Supply Association and former commissioner of the National Plumbing and Heating Institute and Mr. Fred N. Kretschmer, a former president of the Central Supply Association.

The new association will include only wholesalers in its membership. It is planned to give to those wholesalers in its territory the more intensive service which, it is felt, can be offered by a smaller, sectional group.

Mr. Leighton has been active for many years in wholesaler affairs, in the Central Supply Association, in the Central Western Credit Exchange and in the trade practice movement. He has just resigned as a member of the executive committee of the Central Supply Association.

Mr. Thomas has been secretary of the Central Western Credit Exchange for 15 years and has aided in the organization of other credit groups. He is an attorney, a graduate of the University of Minnesota, class of 1906. About 30 years ago, he was a credit clerk under George N. Peek, now in charge of administering the Agricultural Adjustment Act.

The new association, in addition to concentrating on problems in its territory, plans to take an active part in national affairs affecting wholesalers, especially those now developing under the code program.

E. I. Leighton, President

D. R. Thomas, Secretary

How NRA Affects the Plumbing Industry

By H. O. Nelson, of Detroit
President of the Central Supply Association*

SINCE the enactment of our National Industrial Recovery Act the officers and the National Committee members of the Central Supply Association have devoted practically all their time to the preparation of our National Wholesalers' Code, which, as you already know, has been filed with General Johnson's Department. On account of the mutual responsibility of wholesalers and contractors in the distribution of plumbing supplies, efforts are now being made to unify the wholesaler and contractor codes, which, if successful, will contribute a great deal to further stabilization in our industry.

Tons of literature have been broadcast throughout our country expressing opinions on our National Industrial Recovery Act. Few, if any, comprehend its scope of influence and its goal. To me, this new plan is a system; a system so comprehensive, so broad, that it reaches in and affects every person in the United States.

One thing I want to bring forcibly to your attention is that this system was not made to fit you or your industry, but rather, a system to which you must fit your business and your industry. If your business has been operated along sound, ethical, constructive and co-operative lines, you will have little trouble fitting yourself into the new system. The farther you have veered from sound, ethical business practice, the more difficult this will be for you to accomplish.

It was not made for the purpose of exercising a hardship on industry, but to the selfish, unethical and unco-operative, it will be a hardship. Your greatest asset today for recommendation into the new system is your association activities of the past. If you have contributed to your local group, if you have been co operative, if you have enjoyed the membership in your industry's associations, you will have a background that will be very helpful to you under the new system. One cannot get a true perspective of his obligations to industry by sitting in his own bailiwick disregarding all interest in his competitor. If you cannot get the broader viewpoint in this plan of co-operation, you will be classed with the outer fringe; that 10 per cent referred to by our President as having no place in industry. The plan is good, but it is hard. That is one of the most desirable things about it. It is something we can lean on; it is founded on fair play to all.

A business must be profitable to be good; whether large or small, good management is essential. The larger an industry becomes, the more difficult it is to control and the more necessary. It is no disgrace to set up the necessary machinery to control our channels of distribution. Sound progress and civilization depend upon our ability to organize and function efficiently.

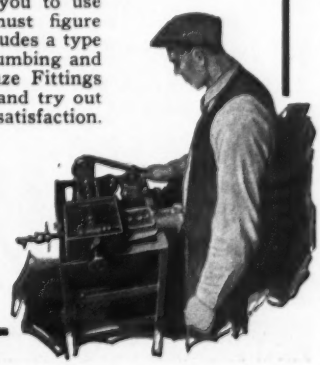
Where laws are necessary, so also are penalties. When we are unable to execute our penalties, our laws become worthless. The NRA furnishes the opportunity for industry

*Excerpts from address delivered before the Executive Committee and Wholesale Members of the Central Supply Association, at a recent meeting in Chicago.

Send for the Kennedy Catalog
The Kennedy Valve Mfg. Co.
Elmira, N. Y.
Branches in principal cities

Kennedy Brass Fittings

THESE fittings, made of the same tough, strong metal that is used for Kennedy Bronze Valves, provide an insurance against pipe fitting troubles at no extra cost to you. Each fitting is individually tested by air pressure under water before leaving the factory so that you can depend upon body and threads being thoroughly leakproof. Their precision automatic machine work further assures clean-cut, accurately aligned and correctly formed threads which enable your fitters and machinists to obtain tight joints at the first make-up. The attractive design of these fittings and their uniformity of color with that of high grade bronze piping, make these fittings worthy of your finest installations, and their reasonable price permits you to use them even on jobs where you must figure closely. The large Kennedy line includes a type and size for every requirement on plumbing and heating jobs. Order Kennedy Bronze Fittings from your dealer for your next job and try out their many advantages to your own satisfaction.



KENNEDY
VALVES-PIPE FITTINGS-FIRE HYDRANTS

SUCH QUALITY MAKES OUR LOW PRICE TRULY AMAZING!

$43.75
AT DAVENPORT
(Subject to raise without notice)

THE Red Jacket Shallow Well Water System was *not* built to meet anyone's price. Don't let the low price of only $43.75 mislead you. There's no other system on the market at anywhere near this price that will give the trouble-free service and satisfaction that Red Jacket will. Quantity production makes our low price possible. Low price alone would not maintain quantity sales unless our dealers were making satisfied customers.

LIBERAL DISCOUNTS

Progressive dealers all over the country are swinging to Red Jacket because of the liberal dealer discounts, quick turnover and satisfied customers. Write for full details today!

Also complete line of hand, windmill and three-way pumps.

RED JACKET FEATURES

1. Will deliver 250 *actual* gallons per hour from well or cistern up to 22 ft. in depth.
2. Water lubricated bearings require no oil. No oil polluted water. No stuffing box leakage.
3. Powered by Century ¼ H.P. Motor.
4. All moving parts strongly made of non-corrosive metals —brass, bronze and stainless steel.
5. Pressure switch, relief valve and heavy galvanized tank.
6. Compact, quiet, well balanced, smoothly finished and attractively painted.

NRA

RED JACKET MANUFACTURING CO., DAVENPORT, IOWA

Mfgrs. of Pumps and Water Systems for 57 Years

DORWARD-Red Jacket

WATER SYSTEMS AND DEEP WELL POWER HEADS

to set up rules to govern ethics and to establish fair trade practices. Good wholesalers everywhere will welcome the opportunity to operate under a uniform system.

At our last annual meeting this association again went on record favoring the old established method of distribution—manufacturer to wholesaler to licensed plumbing and heating contractor—as being the most economical and as a safeguard to public health. The recommendation was made that we make frequent contacts with our customers in order to secure a more complete picture so that we might better solve our mutual problems. Your officers have given a great deal of study to this subject, but, needless to say, progress has been slow.

Naturally, our greatest flash of encouragement came with the enactment of our NRA. It is too early to predict just how closely the wholesalers and contractors will be able to work under the new plan, but it is generally agreed that close co-operation would contribute a great deal to stable orderly distribution and safe sanitary installations.

EVERY MAN SHOULD JOIN HIS TRADE ASSOCIATION

Under our industry's code of fair competition, it is most desirable and necessary that every man operating a business become affiliated with his trade association. Wholesalers can be very helpful to the contractors' association by urging all contractors to join their local or state group. We must help one another in this great industrial march of progress, and with our government co-operating, stabilization and fair trade practices are assured.

We are in business because of a service we indirectly render to the public. No other industry contributes so much to sanitation and health; it is not enough that we buy and sell good quality products; our channels of distribution should insure to the public safe and sanitary installations. This, in my opinion, can only be accomplished by marketing such products through the licensed master plumber. It may cost us something to do this, but if our duty lies in that direction, we should not falter. Closer co operation with the installing branch of our industry will insure better products and better installations.

Business, large and small, must come under this new control; channels of distribution will be straightened out. The barber will be a barber, the blacksmith a blacksmith, and the shoemaker will have to stick to his last. Sixty percent majority in any industry will have the control. The good wholesalers and contractors represent more than sixty percent of the distribution in this industry. We have, therefore, a great opportunity to institute ethical practices and eliminate many of our troublesome problems.

I hope that no one in our industry thinks that this industrial program is a temporary proposition—that it will blow over in a few months and that we will again settle back into our former catch-as-catch-can system of doing business. This plan is only new in application. The basic principles contained in this new program are older than industry; economists for ages have recognized the need for orderly control of business. Thus far, you have only had a glimpse of it, only the starting point; few if any are able to comprehend the vast changes that are yet to be unfolded before us. Each step ahead will give us more courage and our road will be firmer and safer. That type of competition which has been unfair and bitter will disappear and in its place will be established a system based on merit and constructive action.

Now in New Location

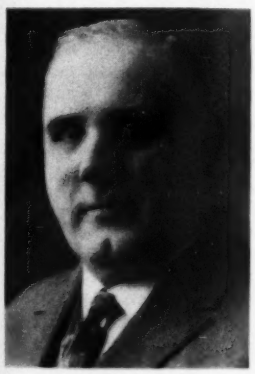
W. A. Russell & Company, New York City, announce the removal of their general offices from Room 5039, Grand Central Terminal Building, to Suite 1734, in the same building.

Obituaries—

James A. Campbell

James A. Campbell, one of the founders and for many years president of the Youngstown Sheet & Tube Co. of Youngstown, Ohio, died Wednesday evening, September 20, at his home in that city in his 80th year, after having been in failing health for nearly two years. Mr. Campbell was born at Ohltown, Trumbull county, Ohio, on September 11, 1854. He received his education in the public schools and at Hiram College and was offered the appointment to West Point, but declined in order to become clerk in a store in Youngstown. Later he was connected successively with a coal company, a furniture business and an ice company. His success in managing the ice company attracted the attention of the owners of Trumbull Iron Company at Warren, Ohio, with the result that he was offered the management of this concern, which he accepted in 1890. In 1901 he helped to organize the Youngstown Sheet & Tube Co. and became its vice president and general manager. On June 26, 1904, he was elected president of the company, and he held this office for more than 25 years until December 1929, when he was succeeded by Frank Purnell and became chairman of the board. Early in February, 1932, Mr. Campbell retired as chairman of the board and was made chairman emeritus. He took an important part in making his concern one of the four largest steel companies in the country. He also took an active part in civic affairs, being president of Youngstown Chamber of Commerce and a director in several banks. His wife, a son and a daughter survive him.

Warren Jones



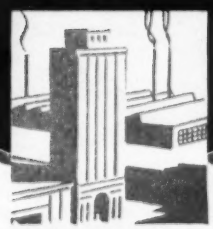
Warren Jones

Warren Jones, manager of the Standard Sanitary Manufacturing Co's. branch at Grand Rapids, Mich., died at his home in that city on Friday, September 8, in his 55th year. Mr. Jones had been connected with the Standard Sanitary Mfg. Co. since 1920, and he was manager of its Grand Rapids branch from 1926 until the time of his death. From 1915 to 1920 he was connected with Leighton Supply Co. of Fort Dodge, Iowa. He was highly esteemed by all who knew him.

H. C. Kretschmer

Herbert Charles Kretschmer, one of the founders and for many years president of the Kretschmer Manufacturing Company of Dubuque, Iowa, died after a long illness, at his home in that city on Monday evening, September 11th. Mr. Kretschmer was born in Dubuque August 22, 1866, and spent all his life in that city. At the age of 15 he entered the employ of A. Y. McDonald, a pioneer plumbing and pump manufacturer in Dubuque. In 1888 he went on the road for Mr. McDonald. He remained with him 25 years until 1907, when he left to engage in business for himself. In 1907 he and A. M. Morrison, together with his brother Fred N. Kretschmer, organized the Morrison & Kretschmer Mfg. Co., and after the retirement of Mr. Morrison from his company, the name was changed to the Kretschmer Mfg. Co. H. C. Kretschmer remained president of this company until

The DURIRON Code



NRA MEMBER U.S. WE DO OUR PART

BENEFITS EVERY PLUMBING CONTRACTOR

Orders from leading plumbing contractors indicate they have put their seal of approval upon the Duriron code of Business Ethics:

- They favor our one-price policy.
- They are confident that we will make good our promises.
- They are familiar with the quality of Duriron products and their ease of installation.
- They prefer the helpful suggestions of Duriron trained and experienced engineers to the old-style high-pressure salesmanship.
- They realize that the profit is several times greater on a Duriron job . . . with much more satisfaction to the building owner.

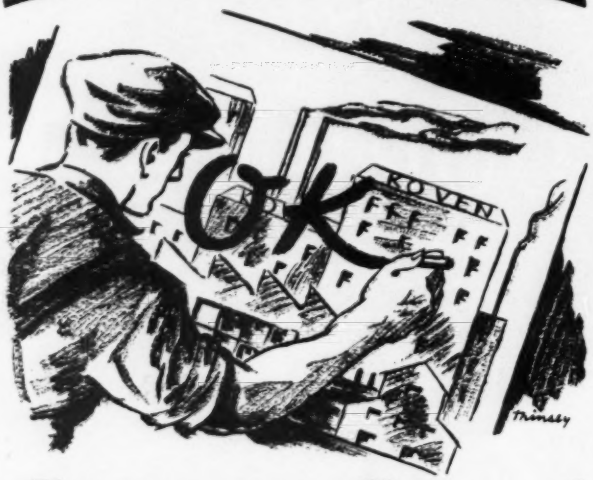
Use Duriron Acid-Proof Drain-Pipe wherever there are acids or corrosives. It is installed exactly like extra heavy cast iron soil pipe.

Quick shipments. Write for Bulletin and Price List

THE DURIRON COMPANY, Inc.
410 N. Findlay St. Dayton, Ohio

DURIRON ACID PROOF DRAIN PIPE

It's a KOVEN Product



KOVEN Quality and Co-operation approved by leading Plumbers

A reputation of over half a century of honest dealing with plumbers throughout the country has made the KOVEN products the standard for comparison.

Our policy has always been to supply merchandise that will stand every test and to cooperate with the plumber so that he will be assured that when he recommends a KOVEN boiler or tank, his worries are over.

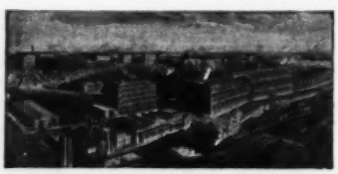
RANGE BOILERS
Galvanized or Copper
SCULLERY SINKS
BARBER BOILERS
KOVEN-PARACOIL TANKS

NRA
WE DO OUR PART

STORAGE TANKS
Steel or Copper
FUEL OIL TANKS
EXPANSION TANKS
SEPTIC TANKS

Insist on the best by asking for KOVEN Products from your jobber.

Send for New 1933 Plumbers' Hand Book



L.O. KOVEN & BRO. INC.
JERSEY CITY, N.J.

1927, when he retired on account of failing health and on the advice of his doctor. Herbert Kretschmer had a large circle of friends in the trade who will be sorry to receive the news of his demise.

Edward Luig

Edward Luig, a member of the plumbing and heating supply firm of Fladd-Luig Co., Inc., of Rochester, N. Y., died recently at his home in that city after a short illness. Mr. Luig was also secretary of the examining board of plumbers in Rochester. His wife, a daughter and a sister survive him.

A. S. Maxwell

A. S. Maxwell, for many years sales and advertising manager for J. H. Williams & Co. of New York City, Buffalo and Chicago, died at his home in Garden City, Long Island, N. Y., on September 7, of heart failure, the result of a severe rheumatic condition. His wife, a son and a daughter survive him.

Keeney Mfg. Co. Appoints Four Sales Representatives

The Keeney Manufacturing Company of Newington, Conn., has appointed sales representatives to cover territory as indicated:

Charles F. Stumpf will represent the heating specialty division in Illinois, Indiana and Wisconsin, and the tubular brass division in Indiana, Wisconsin and in Illinois, exclusive of Chicago. Mr. Stumpf's headquarters are at 417 West Ohio street, Chicago.

Hugo C. Schwan will represent the heating specialty division and the tubular brass division in the State of Michigan with headquarters at 2457 Woodward avenue, Detroit, Mich.

H. H. Wright will represent the heating specialty and the tubular brass divisions in Kansas, Oklahoma and the western part of Missouri, with headquarters at the City Bank building, Kansas City, Mo.

William McNamara will represent the heating specialty and the tubular brass divisions in Minnesota, with headquarters in the Plymouth building, Minneapolis, Minn.

Announce Change in Management of W. A. Russell & Co

W. A. Russell & Company of Grand Central Terminal building, New York City, announces that the entire management of their business is now being handled by H. W. Rejs, vice president and sales manager, and that Evins F. Glore has resigned as president and has severed his connection with the Russell Company.

Appointed Representatives for Blake Specialty Co.

Blake Specialty Co. of Rock Island, Ill., has just announced the appointment of the following additional representatives to cover the territories indicated:

George H. Killits Co., Portland, Ore., Oregon territory.—F. W. Barlow, Flushing, L. I., N. Y., Long Island territory.—W. E. Lawton, Richfield Park, N. J., northern New Jersey.—A. H. Smith, Pittsburgh, Pa., western Pennsylvania.—H. H. Leukert of Columbus, Ohio, central and southeastern Ohio.—George A. Lucke, Baltimore, Md., Maryland and Virginia territory.—H. Thompson, El Paso, Tex., Arizona, New Mexico and El Paso, Tex.—A. Mitchell, Jr., Albany, N. Y., northern New York across the State from Syracuse to the Massachusetts line.—W. C. Flavin, Boston, Mass., covering Maine, New Hampshire and Massachusetts.—H. E. Coe, Durham, Conn., covering Connecticut territory.—R. L. Hanschke, Lakewood, Ohio, covering northern Ohio territory.

File Steel Boiler Code

The Steel Heating Boiler Institute has filed with the National Recovery Administration its code of fair competition for the steel tubular and firebox boiler industry.

Iron Plumbing Specialty Manufacturers Study Code Problem

The Iron Plumbing Specialty Manufacturers Association is studying the question of the code for that industry. It is understood this group of manufacturers, while submitting a code for their particular industry, will come under the general code which is being sought by manufacturers of enamel ware, pottery, brass, etc. Olin C. Eckley, Ypsilanti, Mich., is secretary.

Pipe Nipple Manufacturers File Code

The National Association of Pipe Nipple Manufacturers has filed with the national recovery administration its code of fair competition. Frank Weideman of Wauwatosa, Wis., has been appointed an industrial advisor, and H. L. Brunson, former assistant to the president of the International Association of Machinists, has been appointed labor advisor by the national recovery administration in connection with the pipe nipple code.

Black & Decker Mfg. Co. Reports Large Increase in Business

The Black & Decker Mfg. Co. of Towson, Md., reports a consistent monthly increase in volume and earnings since last April, including August, which normally is one of the dullest months of the year. The concern is a whole-hearted supporter of the National Recovery Act. Employment has increased 127 percent since the turn in April, and all classes of employers are working shorter hours and at a higher rate of pay.

The bank loans of this company, as of January, 1931, totaled $1,870,000 and in April of this year $821,275. They now stand, after offsets of closed banks, at net figure of $672,979.66, which is less than cash and accounts receivable. These loans are being reduced monthly and the ratio of quick assets to current liabilities has increased to 2.72 as of August 31.

Walworth Co. Shows Net Profit

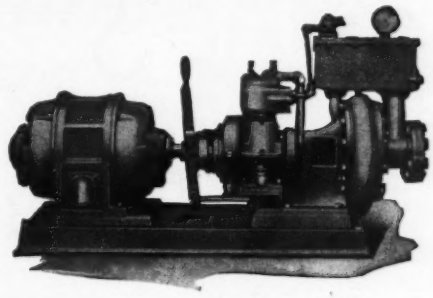
Walworth Company of Boston, Mass., and subsidiaries, in their report for July, show net profit of $10,038 after depreciation, interest, taxes, etc. This is the first net profit shown in thirty-four months, or since September, 1930.

F. E. Myers & Bro. Co. Resumes Common Dividend

The board of directors of F. E. Myers & Bro. Co. of Ashland, Ohio, has declared a dividend of 25 cts. a share on the common stock, payable September 30 to holders of record September 15. This is the first dividend since December 31, 1932, when a similar dividend was paid.

Northwest Specialty Co. Starts in Business

The Northwest Specialty Company is the name of a new plumbing and heating specialty concern which has started in business at 614 Aurora avenue, Seattle, Wash. The officers of the new company are: R. B. Peeples, formerly with Walworth Co. and the Western Supply Co.; Robert Roberts, also formerly with Walworth Co., and Harry Garner, formerly for many years with the Marshall-Wells Company.



(Trash handling type for pumping sewage, waste, or any liquids containing large percentages of solids)

AMES AUTOMATIC PRIMERS NEED NO WATER FOR INITIAL PRIMING

On starting, air is immediately exhausted from the suction pipe. During this process, sewage or liquid rises and finally reaches the centrifugal impeller. Almost simultaneously full discharge pressure and capacity are attained. If for any reason the main pump should lose its prime, a float operated check valve immediately brings the vacuum pump into action and repeats whenever the need for extricating the air exists.

Ames Automatic Primers are fitted either with open or enclosed impellers and can be arranged for belt, motor, or gasoline engine drive.

WRITE FOR BULLETIN NO. 1100.

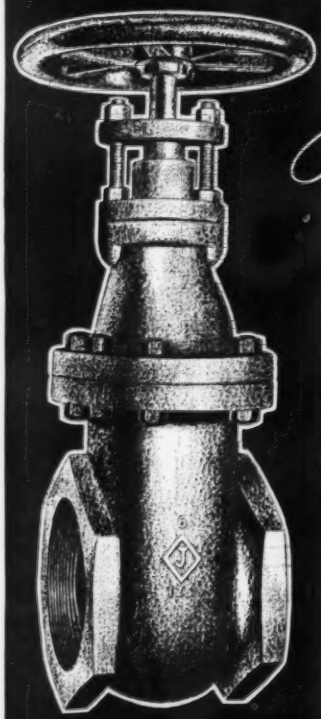
AMES PUMP COMPANY, INC.
30 CHURCH STREET • NEW YORK, N. Y.

Manufacturers of vacuum heating, condensate, centrifugal pumps, and fuel oil pumping-heating units

Division of American Locomotive Company

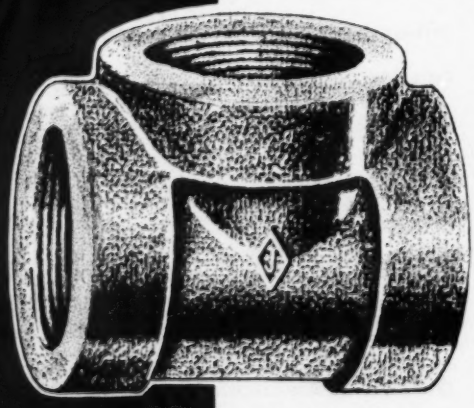
Representatives in all principal cities. Products manufactured and sold in Canada by Montreal Locomotive Works, Ltd.

VALVES AND FITTINGS by Jarecki



The Jarecki trademark "J" is a simple trademark, but it speaks a universal language. In every part of the globe it stands for products possessing the strength, uniformity and CHARACTER that means *economical* service. A complete line, backed by 81 years of fair dealing.

JARECKI MANUFACTURING COMPANY Erie, Pa.



Business Personals

CLARENCE M. WOOLLEY, chairman of the Board of the American Radiator & Standard Sanitary Corporation of New York City, has returned from his summer vacation on the high lands of Northern Mexico. His main diversions while there were shooting and fishing. He says that Mexico has a marvellous summer climate, wonderful sports for those who like to shoot or fish, all comforts for travellers and a courteous, obliging population.

H. W. SEYMOUR, vice-president of Crane Company, Chicago, who recently has not been enjoying his usual good health, left last week on a trip to New Mexico in an effort to recuperate.

HARRY R. MYERS has been appointed manager of the Syracuse branch of the Pierce, Butler & Pierce Manufacturing Corporation. Mr. Myers was until recently manager of the Central Supply Company of Worcester, Mass. He was formerly manager of the Tomlinson Co. in Philadelphia, and before that for many years with American Radiator Company.

EDWARD J. COLLEY, manufacturers' representative at 31 Twenty-third street, West New York, N. J., has just been appointed representative for the M. L. Oberdorfer Brass Co. of Syracuse, N. Y. Among other concerns represented by Mr. Colley are: National Foundry Co., Brooklyn, N. Y.; Dick Bros., Reading, Pa., and Jay H. Newbury & Son, Goshen, N. Y.

ALBERT F. HEM, formerly manager of the St. Louis branch of the National Radiator Corporation, has been appointed director of the heating sales department of the Plumbers Supply Company of St. Louis, Mo.

WILLARD A. SPEAKMAN, JR., son of W. A. Speakman, president of Speakman Co. of Wilmington, Del., and Miss Olive Cordelia Crane of Westover Hills, Del., were married September 22, and are now on their wedding trip. Mr. Speakman, Jr., is associated with the Speakman Co.

CHAS. G. WALL, formerly sales manager for the Sloan Valve Company of New York City, has been appointed manager of the New York office of the Never Split Seat Company of Evansville, Ind. Mr. Wall will cover the Greater New York district and northern New Jersey.

JOHN DALE has just been appointed sales representative for Chetwood Smith, manufacturers' agent in New England, with headquarters at 426 Park Square building, Boston, Mass. Mr. Dale received his education at Lawrence Academy, Groton, Mass.; Williston Seminary, Easthampton, Mass., and Boston University, and he was connected with the Walworth Company of Boston, Mass., for ten years from 1921 to 1931. From 1931 to 1933 he was employed by H. R. Gibbs Supply Co. of Flushing, L. I., as manager of its heating department. He is thus well prepared for his new duties and will no doubt prove a valuable addition to Mr. Smith's organization.

John Dale

GEORGE H. PHILLIPS has been appointed service manager for the Heater Division of the Motor Wheel Corporation of Lansing, Mich., according to announcement just issued by M. F. Cotes, manager of this division. Mr. Phillips succeeds A. E. Nussdorfer, who is now an assistant engineer in the

company's Heater Division laboratories. Mr. Phillips was for the past year service engineer in the East, where his former duties have been assumed by Adolf Frantz of the company's service department.

A. J. KEHOE has been appointed sales representative for the Thomas Devlin Manufacturing Company of Burlington, N. J. Mr. Kehoe has had a wide sales experience and is well qualified for his new duties, which will consist in covering the leading cities in the states of Indiana and Ohio as well as the Detroit area in Michigan.

MARTIN A. ROONEY has been appointed general sales manager for Noland Company, Inc., whose general offices are in Newport News, Va. Mr. Rooney was formerly vice president and general sales manager of Pierce, Butler & Pierce Manufacturing Corporation and, in previous years, was connected with both the American Radiator Company and Hart & Crouse Co. of Utica, N. Y. Mr. Rooney was born in the South and served his apprenticeship as a plumber in that part of the country.

Martin A. Rooney

ARTHUR R. BRADLEY has just been appointed sales representative in western Massachusetts, Erie county, Pa., and in the states of New York and Vermont for the Rome Radiation Company, Division of Revere Copper and Brass, Incorporated, Rome, N. Y. He will make his headquarters at 816 Livingston avenue, Syracuse, N. Y.

Eastern Trade Golfers' August Meet

The Eastern Trade Golf Association held its regular monthly tournament at Lakeville Golf & Country Club, Great Neck, L. I., N. Y., on August 17, with a good attendance.

The prize winners were: Leo O'Neil, G. R. Galbraith, W. A. Davis, C. D. Waters, J. B. Garfield, H. H. Putnam, J. C. McDonald, C. S. Wood, D. W. Hughes and G. E. Olsen. The prizes, all valuable, were donated by the following: Chas. S. Wood of Newark, N. J.; Walter Davis of Youngstown Sheet & Tube Co., New York City; B. Cummings of Dickenson Vandusen Co.; W. T. Rogers of the Fairbanks Co.; G. F. Sheehan of Almirall Co.; F. L. Patterson of the Patterson-Kelley Co.; G. R. Galbraith of Walworth Co.; R. H. Carpenter of Nash Engineering Co.; W. H. Driscoll of Thomson-Starrett Co., and John T. Midyette, Jr., of the Minneapolis-Honeywell Regulator Co., all of New York City.

Connecticut P. & H. Golfers Meet at Middletown

The Connecticut Plumbing & Heating Trades Golf Association held its monthly tournament at Middletown Country Club August 23. The event was a pleasant success, and twelve prizes were awarded as follows:

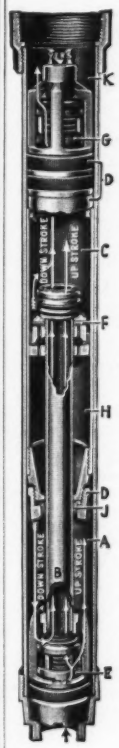
Prize winners with handicap 1 to 20: First low net, E. L. Hendrickson, 75; second low net, J. J. Cotter, 76; third low net, tie between Mr. Gretter and Mr. Williams, 77. Mr. Gretter won.

Prize winners with handicap 21 to 30: First low net, E. R. Clements, 70; second low net, George Dugdale, 70; third low net, E. O. Nelson, 70; fourth low net, A. E. Russell, 77.

Prize winners with handicap 31 to 40: First low net, J. A. Byrne, 72; second low net, H. E. Coe, 81.

The winners of the guest prizes were: First low gross, F. A. Johnson, 78; second low gross, J. Riccio, 81, and third low gross, E. F. Bainbridge, 92.

Keep in Mind—



MYERS

CYLINDERS

ARE QUALITY BUILT

Seldom a summer passes without severe water shortage in many localities. This year is no exception. Extremely hot and dry weather has prevailed for weeks. Countless wells and cisterns are again bone dry.

Deeper and larger wells are a safeguard, and deeper wells require dependable cylinders. This is one of the many reasons why Myers Cylinders continue in favor. Quality built, mechanically correct, full size, full weight, full capacity, they out-serve and out-live by a wide margin cylinders less carefully designed and constructed.

Single and double acting styles in all standard sizes for use with any type of hand or power pump for either shallow or deep wells, provide the best of sales possibilities.

Your request for catalog and prices will receive prompt attention.

THE F. E. MYERS & BRO. CO.
Ashland, Ohio

Installed in All Official Buildings

of the

WORLD'S FAIR

The

Watrous

JEWEL FLUSH VALVE

A THOROUGH flush, without any water-waste, is assured by the adjustment-feature of this popular model; it accurately measures out the quantity of water required by the fixture. Easily adjusted without turning off the water.

Because of its economical and efficient action this valve was installed in all comfort-stations of the official buildings at the World's Fair. James B. Clow & Sons, jobbers, and J. W. Holt, plumbing contractor, directed the installation work at the Exposition.

MAJESTIC FLUSH VALVE

The diaphragm-type shown on the right has 25 per cent greater diaphragm - area than the ordinary diaphragm-valve — important when pressure is low.

IMPERIAL FLUSH VALVE

A dependable piston-type is shown on the left. It has self-cleansing by-pass, outside regulation, and non-hold-open features.

Write for Plumbing Catalog No. 433

IMPERIAL BRASS MFG. CO.

1231 West Harrison St., CHICAGO

New Jersey P. & H. Golfers at Cedar Ridge Country Club

The Plumbing and Heating Trade Golf Association of New Jersey held its regular monthly tournament at the Cedar Ridge Country Club, Livingston, N. J., on August 17. The day started off with a steady rain which lasted until eleven o'clock, but this did not prevent nine hardy golfers from going out after lunch and playing 18 holes. A. Blackwood, president of the association, motored down from Troy, N. Y., and arrived in time for dinner and to preside at the meeting. F. Robinson with a net 70 won his third leg on the cup, and this will now remain in his possession.

The day's scores for the 18 holes follow:

	Gross	Net		Gross	Net
F. Robinson	90	70	W. W. Lee	126	92
C. Peirce	115	77	H. Baumgartner	90	71
A. Gasewind	110	81	L.S.Sudhaus(Guest)	84	..
F. Engelberger	100	80	C. Sudhaus (Guest)	99	..
H. Officer	98	73			

N. E. Heating Trade Golfers Meet at Albermarle

The New England Heating Trades Golf Association held its monthly tournament at the Albemarle Country Club at West Newton, Mass., August 22. Invitation to attend this tournament had been extended to the members of the Boston Chapter of the American Society of Heating and Ventilating Engineers, and many of them attended and enjoyed the meet.

The kickers handicap was won by Leslie Irvine, and the low net winners were: R. B. Crocker, E. T. Tierney, J. P. Dwyer, J. J. Riley, John C. Ross, W. A. Hamilton, T. F. Scott and W. T. Dooley.

Among the scores turned in were the following:

	Gross	Net		Gross	Net
T. F. Scott	93	74	W. J. Hajek	98	82
E. T. Tierney	91	68	A. S. Richards	121	89
J. F. Tuttle	90	76	J. H. Barrett	109	85
R. Meikle	91	75	Leslie Irvine	101	82
C. F. Bruggee	105	79	S. H. Waters	105	83
B. F. Schultze	104	83	George Newman	105	83
W. A. Hamilton	93	73	Charles Sheehey	139	99
J. J. Riley	102	69	J. E. McFate	No card	
J. P. Dwyer	86	68	N. R. Grover	100	78
John C. Ross	83	69	A. G. Dodge	101	77
F. E. Johnson	100	84	G. K. Saurwein	131	91
W. Hale	111	75	W. T. Dooley	102	74
I. I. Milliken	94	75	A. H. Sweetman	86	72
G. F. Elliott	96	76	D. S. Boyden	92	80
J. V. Fitzsimmons	112	85	R. B. Crocker	77	70
J. Turner	96	80			

N. E. Metal Products Golfers at Rhode Island Country Club

The New England Metal Products Golf Association held its regular monthly tournament at the Rhode Island Country Club at Nyatt, R. I., on Thursday, August 31. This club's course is considered one of the best and most interesting in the country, and the meet was therefor exceptionally well attended.

Three low net prizes were available for both morning and afternoon rounds.

In the morning round John S. Nicholl and Dick Lane were tied with scores of 83, and John G. Ross had a score of 85. The afternoon round was won by John Milliken, 80, W. Taylor, 80, and Morris Lynch with 81.

It was voted to hold the September tournament at the golf course of the Winchester Country Club at Winchester, Mass.

A vote of thanks was given to George E. Phillips of Phillips Lead & Supply Co. of Providence, R. I., for his efforts which made the day a splendid success.

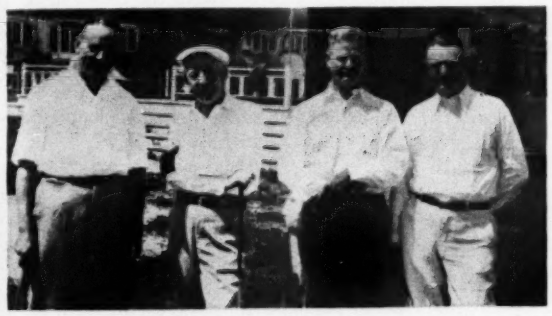
It was also voted to make Walter J. Eddy of L. H. Tillinghast Supply Co. of Providence an honorary member of the

association. Mr. Eddy is one of the charter members, and this honor was bestowed upon him for his good work for the association during these many years. Mr. Eddy would not consider the honor on any other basis than this that he be allowed to pay his dues regularly as all other members do. Mr. Eddy was so insistent that there was nothing else to do but to agree to his terms. He thereupon thanked the officers and the members of the association for their courtesy and kindness.

Gamble and Riley Winners in Northwest Golf Tournament

Following out its annual schedule, calling for alternate plays at various private courses in and around Seattle, Wash., the Northwest Plumbing and Heating Golf Association held its monthly tournament at the Seattle Golf & Country Club.

C. G. Gamble, of Crane Co., was winner of the Class A event, with a card of 91-20 71. This now places five men in the running for the Class A trophy, in which W. G. Montgomery, of the Northwest Plumbing Supply Co., leads the race, with two wins to his credit and but one to go.



From left to right: Harry Eyman, W. G. Montgomery, C. G. Gamble and Samuel Kerr, all of Seattle, Wash.

In Class B, Club Treasurer Ed Riley, of Palmer Supply Co., was awarded victory, with a card of 92-20-72. Mr. Riley now ties with Earl Jones, of the Seattle Gas Co., both of whom have two legs on the Class B trophy cup.

Convention Dates

October 2-6, 1933.—A. W. S.—The fall meeting of the American Welding Society, at Detroit, Mich., with headquarters at the Book-Cadillac Hotel.

October 25 and 26, 1933.—C. S. A.—The annual meeting of the Central Supply Association, at Palmer House, Chicago.

October 25 and 26, 1933.—E. S. A.—The annual meeting of the Eastern Supply Association, at Hotel Astor, New York City.

October 31 and November 1, 1933.—N. A. B. H.—Organization convention of the National Association of Better Housing, at Chicago, Ill., with headquarters at the Union League Club.

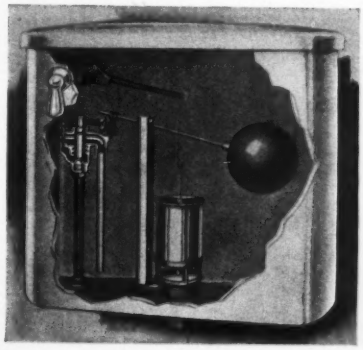
November 8-11, 1933.—N. A. P. R. E.—The annual convention and educational exhibition of the National Association of Practical Refrigerating Engineers, at New Orleans, La., with headquarters at the Roosevelt Hotel.

December 6-8, 1933.—A. S. R. E.—The annual meeting of the American Society of Refrigerating Engineers, in New York City, with headquarters at the Hotel New Yorker.

February 5-8, 1934.—A. S. H. V. E.—The annual meeting of the American Society of Heating and Ventilating Engineers, in New York City.

February 5-9, 1934.—I. H. V. E.—The third annual International Heating and Ventilating Exposition at the Grand Central Palace in New York City.

CURTIN BUILDS
for
SERVICE *and* EFFICIENCY
Noiseless Water Closet Tank Fittings



CURTIN TANK FITTINGS INSTALLED IN LOW CLOSET TANK

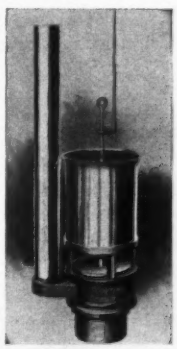
CURTIN VALVES and Curtin Ball Cocks are independent of each other. Curtin Valves will flush and automatically refill any closet without the aid of a refill tube from the Ball Cock. Completely empties tank with each flush. Operates any size closet with less than 5 gallons of water. Made of Cast Bronze. Cylinder and overflow tube of seamless drawn copper.

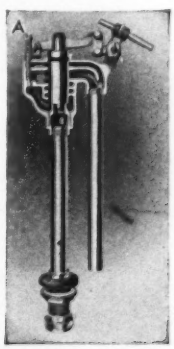
Curtin Ball Cocks are furnished for both bottom supply, and back or top supply connections. Will fill any tank noiselessly and rapidly.

On very low pressures opening by-pass regulator (A) permits free passage of water thru the Ball Cock and insures quick refilling of the tank.

This feature makes it possible to obtain maximum volume of water thru the Ball Cock in proportion to the pressure.

The Tank illustrated has Curtin all china lever. Lever has self-adjusting escutcheon independent of handle. Made of Cast Bronze with metal to metal bearings, reducing friction to a minimum. Exerts powerful lift in either direction. Exceptionally strong and always in perfect alignment. Furnished also in all CHINA COLONIAL Style or ALMETAL Chrome plated.





Dealers: Are you getting your share of that profitable REPLACEMENT and Remodeling business in homes, apartments and hotels where your customers should not be disturbed by noisy water closets?

See your wholesaler — he can supply your demands from stock

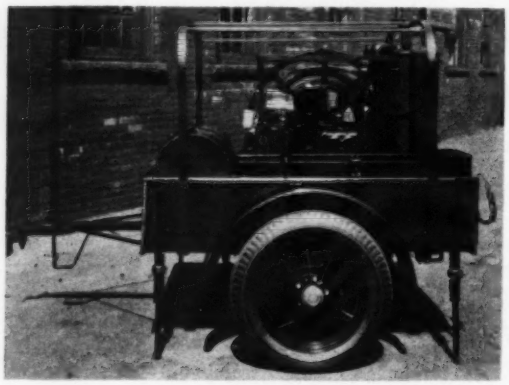
WE DO OUR PART

A. F. CURTIN VALVE CO.
MEDFORD MASS.

New Store AND Job Items

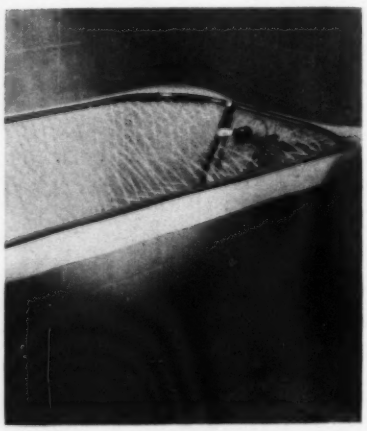
Trailer Contains Boiler Cleaner

Announcement has just been made of a new trailer type boiler cleaning unit. It has been placed on the market to assist contractors in obtaining new business through cleaning and servicing of existing installations. Arco Vacuum Corporation, 40 West 40th Street, New York City, is the manufacturer.



Shower Spray Fits On Bath Tub

The accompanying illustration shows a shower spray which just recently has been placed on the market. It is designed

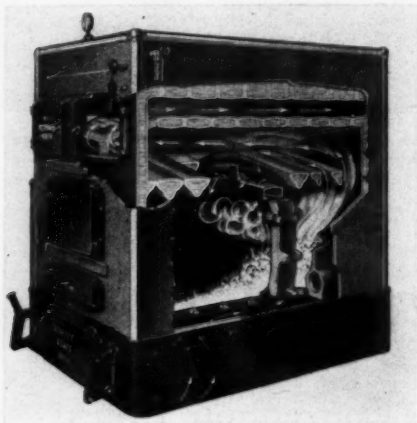


to be installed in existing bathrooms. An extension arrangement is designed so as to make the shower fit all tubs, small rubber washers inserted over the tubing protect against scratching or slipping. Sevon Co., 404 Wesley Temple Building, Minneapolis, Minnesota, is the maker.

Device for Making Boilers Smokeless

An improved and simplified application of the cast iron smokeless boiler principle for the combustion of bituminous coal recently has been placed on the market. The device consists of two hollow risers and a hollow distributing arch, cast in a metal selected to be highly resistant to temperature and corrosion. The risers fit into the grate sockets and lugs cast on the arch hold it in position. Bolts also are provided to hold it in place. A special short grate is mounted on sockets cast on the risers. Secondary air, conducted from the ash pit is preheated in passing through the risers to the distributing arch.

By this design, after the hot air leaves the arch it combines with the black volatile products distilled from soft coals and the mixture burns at a high temperature over the red hot coals at the back of the firebox. By thus completing



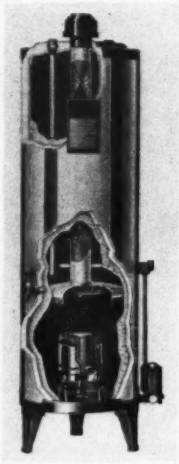
combustion, the idea is to utilize all of the available heat value of the fuel, to increase the over-all boiler efficiency and to minimize smoke nuisance. The installation of this equipment does not necessitate the removal of boiler sections or piping.

Boilers ranging from outputs of 96,000 Btu. to 1,250,000 Btu. may be supplied with this device. Crane Co., 836 S. Michigan Avenue, Chicago, Ill., is the manufacturer.

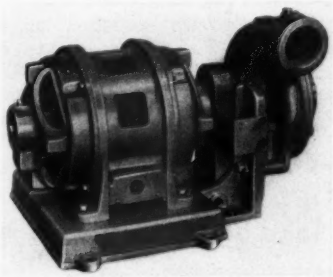
An Oil Burning Water Heater

In the case of this oil burning water heater which has just recently been placed on the market, when it is once lighted and placed in operation it is completely automatic and is designed to require no further attention beyond the refilling of the kerosene tank. A temperature control arrangement regulates the flow of kerosene to the main burner while two

small kerosene pilot lights burn constantly for ignition purposes and also to assist in maintaining the desired temperature. Being designed to use kerosene throughout it is especially adaptable to rural homes that are not wired for electricity or piped for gas. This line of storage water heaters consists of 4 sizes, which are as follows: 22 gallon capacity with one burner; 30 gallon with one burner; 30 gallons with



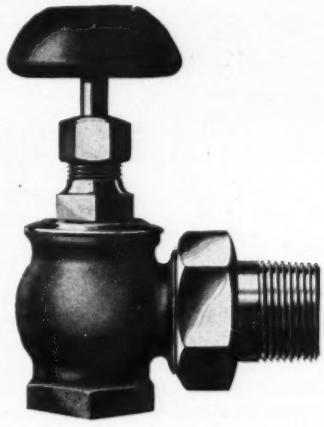
2 burners, and 48 gallons with two burners. In addition, two semi-automatic kerosene burning storage type water heaters are included in this line with respectively 22 and 30 gallons capacity. The smaller models are designed to serve small residences, accommodating one family having one bathroom. The larger models are for residences having more than one bathroom, barber shops, beauty parlors, restaurants, soda fountains and the like. The tank has a metal covering which is finished with two coats of lacquer in tan and brown. The manufacturer is Johnson Motor Company, Waukegan, Illinois.



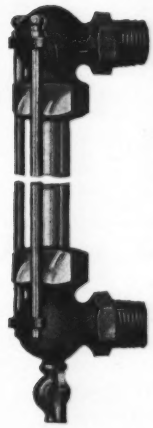
Unit for General Pumping Service

This unit, just recently placed on the market, is for general pumping service in industrial plants, office and apartment buildings, green houses, refineries, cold storage plants and the like. It is listed as having a capacity range up to 1000 g.p.m. and a head range of from 10 ft. up to 290 ft. This line of pumps is built in sizes from ¾-in. to 4-in. The bedplate is designed to provide a positive support for the motor without an excessive strain on the motor shaft or frame. A top horizontal discharge is for the purpose of providing a self venting casing and to give a quiet running

Buy Now

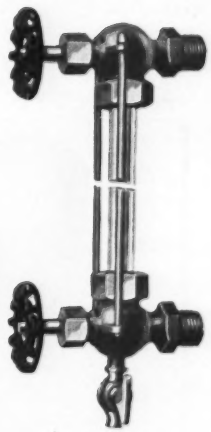


No. 41.
Steam radiator valve packed type.



No. 330.
Expansion tank gauge.

No. 142.
Hot water valve packed type.



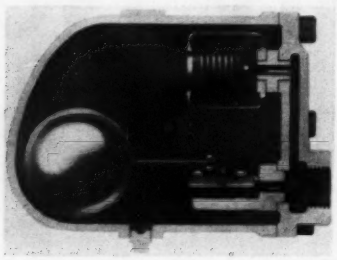
No. 335.
Water gauge.

Complete line of valves and boiler trimmings. Used by the best jobbers for over thirty years. Write for our catalog showing full line of plumbing and heating materials.

NRA
WE DO OUR PART

Bohn Aluminum & Brass Corporation
CAPITOL BRASS DIVISION
MANUFACTURERS OF BRASS VALVES, BOILER TRIMMINGS AND PLUMBERS' BRASS GOODS
DETROIT-MICHIGAN

pump. The manufacturer is Goulds Pumps, Inc., Seneca Falls, N. Y.



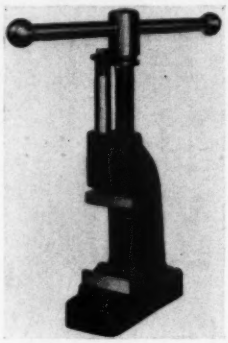
Combination Float and Thermostatic Trap

This new float and thermostatic trap has been placed on the market especially for the purpose of handling condensate in large quantities in sudden rushes such as those which occur in unit heaters, pipe coils and the like. It has a 1½-in. inlet and outlet. The inlet and outlet are in front and the vertical distance which separates them is only 3 in. All working parts are on the cover which is easily accessible by removing the trap body without disturbing the pipe connections. A box is provided on top of the body in line with the cleanout plug which permits the installation of a gauge glass when desired. The standard trap is good for pressures from zero to 10 lb. It also can be furnished from pressures of 10 to 60 lb. The thermostatic valve in this trap is designed to prevent air binding. Sarco Company, Inc., 183 Madison Avenue, New York, is the manufacturer.

New Line of Pipe Vises

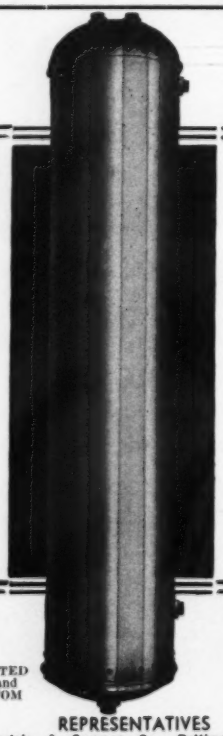
Announcement has been made of a new line of open side pipe vises made in three sizes—No. 00, capacity ⅛ to 1½ in. pipe inclusive; No. 0, capacity ⅛ to 2½ in. pipe inclusive; and the No. 3, capacity ⅛ to 4½ in. pipe inclusive.

They have a heavy frame and long full over-lapping vise jaws. The jaws are made from tool steel, properly hardened,



and when they become dull may be replaced. The handles are over-size to permit easy setting of the jaws.

These vises are particularly applicable for fitting make-up work, says the manufacturer, as the jaw construction permits working close to the face of the vise, and will hold copper as well as iron or steel pipe. The Toledo Pipe & Threading Machine Co., Toledo, Ohio, is the maker.



RIVETED TOP and BOTTOM

SPECIFY GERSTEIN & COOPER for COPPER BOILERS and TANKS

When you buy COPPER Boilers or Tanks, it is important to consider the ability of the manufacturer to BUILD these products as you want them.
Based upon our years of experience, the prestige we have built up due to quality, workmanship and materials being of the highest grade, you can be sure that boilers or tanks backed with the G & C trademark will render the kind of service that will make satisfied customers.
Quality and price is a rare combination to offer, but that is what you get with the Gerstein & Cooper agency.
When you buy COPPER Boilers or Tanks, for the sake of your business, insist upon Gerstein & Cooper.

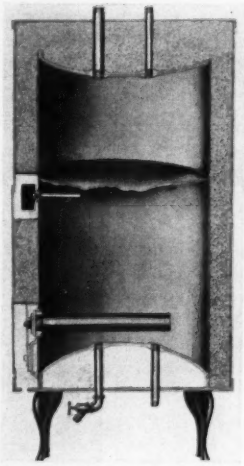
GERSTEIN & COOPER, 1 W. Third St., South Boston, Mass.

REPRESENTATIVES

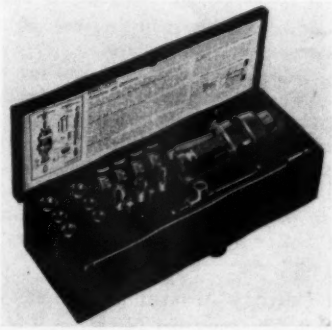
Gerstein & Cooper Co., Baltimore, Md.; G. Mason Price, Montreal, P. Q.; Gerstein & Cooper, New York, N. Y.; Troop Water Heater Co., Pittsburgh, Pa.; Streng, Carlisle & Hammond Co., Cleveland, Ohio; Edw. Sinn, Harrison, N. J.

New Line of Electric Water Heaters

This new line of electric water heaters, which is represented by the accompanying illustration, has been introduced recently in tank sizes of 30, 50 and 60 gallons. They are of the storage type and are automatically controlled by a thermostat which operates on a temperature adjustment between 140 to 200 degrees Fahr. The tanks are of monel metal.



Single or multiple heating elements are provided to meet the requirements of continuous, intermittent or off-peak water heating schedules. The heating elements are made of laminated steel with enclosed coil construction and are interchangeable without draining the tank or interrupting the service. The tank is tested to 400 pounds pressure and is made to provide a 25 to 50 per cent excess safety margin. The heater is made by Hewitt-Electric and Mfg. Company of Arlington, Mass.



Tool Assembly for Reseating Faucets

This tool has been placed on the market just recently for reseating faucets, valves and shower heads having either inside or outside threads. When the fixture through which this tool operates is once affixed to any faucet or valve, the fixture is not removed until the work is fully completed, the idea being to assure true alignment. A combination reamer tap and resurfacer is used so that only one operation is needed to perform these three operations. The fixture has been designed so as to permit its use in very close quarters. Tru-Seat Corporation, located at 5209 Euclid Avenue, Cleveland, Ohio, is the maker.

BURKS SUPER-TURBINE PUMPS

ANY MINUTE NOW!

That Heating Plant Must Be Fired Up! Right Now Is None Too Soon to Step Out and Sell That Owner One of These Justly Famous Return-to-Boiler

NRA MEMBER U.S. WE DO OUR PART

CONDENSATION RETURN UNITS

It's an all-bronze raceway and impeller pump with stainless steel shaft mounted in over-size ball bearings. In short, it's a *genuine Burks Super Turbine!*

Returns condensate to heating boilers *promptly, surely, and safely.* Powerful suction lift and air-handling ability prevents steam-binding. A pump that will carry that boiler safely through when *your back is turned!*

A truly *super pump* on hot water service. No pistons to leak and require repacking. One moving part—the impeller—develops delivery pressures up to 100 pounds per square inch.

SERIES 4700

Send for New Condensation Return Bulletin No. 101

Turbinette

Trade Mark Reg. U. S. Patent Office

WATER SYSTEMS

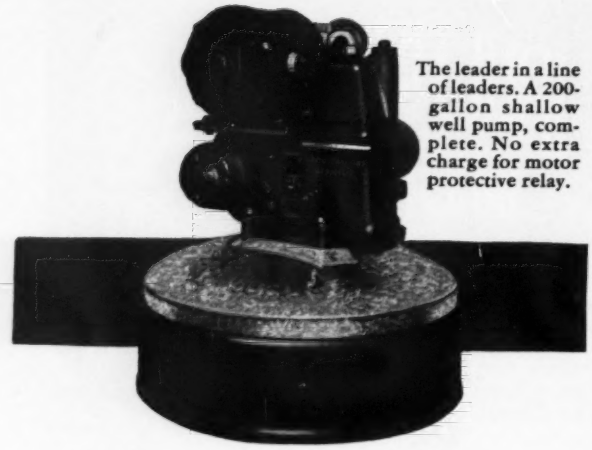
2 PUMP SIZES
6 TANK SIZES

1. Superior craftsmanship and finest materials
2. Bronze raceway and impeller
3. Stainless steel shaft—over-size ball bearings
4. Automatic air volume control
5. Low voltage and motor overload thermal protection
6. 28-foot suction lift guaranteed
7. 20-gallon hot-galvanized tank
8. Pump and motor instantly detachable for inspection
9. Automatic switch set 20-40 pounds. (115 foot total head).

Fig. 8773-20 1/4 HP Motor 300-400 GPH
Fig. 8774-20 1/3 HP Motor 400-500 GPH

NEW BULLETIN No. 99-A TELLS THE WHOLE STORY

DECATUR PUMP COMPANY DECATUR ILLINOIS



The leader in a line of leaders. A 200-gallon shallow well pump, complete. No extra charge for motor protective relay.

Our business *is as good as yours!*

THIS company has been in the water plant business for a long time. We have never seen any manufacturer who was successful unless his dealers made profits, too.

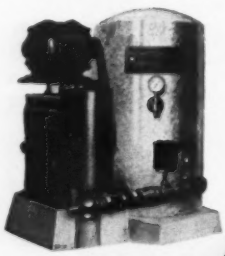
Business can only be *good* with *us* when it's *good* with *you.*

It is the policy of this company to give its dealers every possible aid to profits. In so doing we better our own business. Into the present line of F-M Home Water Systems, we have crowded the greatest value and sales features ever seen in the industry. We have done that to enable you to sell *more* of these systems.

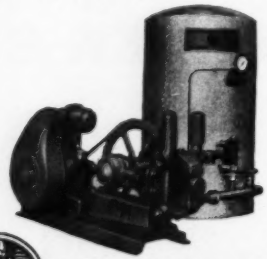
Prices are lower and values are greater, with liberal discounts to dealers.

Advertising and dealer helps are being maintained *consistently.*

Dealers are deciding daily, that it is easier to sell the F-M line than to sell in competition with it.



Electric motor driven system for deep wells.



Engine driven F-M *system for shallow wells.*

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Branches and Service Stations Covering Every State in the Union

SEND FOR FREE CATALOGUE

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900 S. Wabash Ave., Chicago, Ill.

I am interested in your dealer proposition. Send me complete information and FREE Catalog and Handbook on Water Systems.

Name.....

Address.....

California Masters Plan for State's Biggest Convention

Due to the unprecedented growth in the membership of the California State Master Plumbers Association during the past few months, that body is laying plans to take care of an attendance of close to 1,200, of which nearly 500 will be delegates, at its 1934 convention. The executive board recently met at Sacramento, when that city was chosen as the next meeting place, with headquarters at the Hotel Senator. Sessions will extend from May 21 to 24, inclusive. Treasurer J. B. Hawley of Sacramento will act as general chairman; board member W. H. Picard of Oakland will have charge of the exhibits. R. W. Timmons of Richmond is president, and Frank C. Schilling, Jr., of Los Angeles is vice president.

Birmingham Elects New Officers and Adopts Temporary Code

Chas. A. Mandy

New officers have been elected and a temporary code adopted by the Master Plumbers Association of Birmingham, Ala., pending the adoption of a national code. Charles A. Mandy of Mandy & Son was elected president to succeed Joseph A. Pate, who will devote much time to the state association of which he is president. Other officers are: John Tully, vice-president; J. H. Hamill, treasurer, and W. A. Finley, secretary.

The new code adopted after several weeks of conference provides a minimum charge on any job of $1.50. Material is to be charged for at cost plus 33⅓ per cent. Minimum hours of 35 per week are set with the following wages: Journeyman plumbers, 75 cents per hour; helpers, 40 cents; sewer layers, 35 cents, and common labor, 30 cents.

Unfair practices include the following: To give any special discount or rebate except two per cent for cash, to submit any but a final bid except where specifications are changed, to finish any work left undone by another plumber pending adjustment, to publicly criticize or appraise another plumber's work.

Bids must include the cost of the material delivered on the job, plus 25 per cent, plus the amount of the labor at the rate fixed.

Nassau County Master Plumbers Hear Addresses on N. R. A.

The Master Plumbers' Association of Nassau County, N. Y., held an N. R. A. open meeting on August 30 with an attendance of more than 250 master plumbers. Many aspects of the National Recovery Act were explained by speakers who addressed the meeting with the result that the association gained many new members.

Joseph Riedman presided at the meeting, and the speakers were the Hon. J. Russell Sprague, supervisor of the Town of Hempstead; Geo. B. Serenbetz, chairman of the Speaker's Bureau of Nassau County N. R. A.; Samuel Flasterstein, attorney and contributor to the Association Bulletin; William Foley, vice president of New York State Master Plumbers' Association; H. F. Kammeyer, chairman of the Nassau County N. R. A. Committee, and Ex-Senator John Karl of Queens County.

THE TRADE

News of what plumbing and heating contractors are doing the country over

Appoints National Committee

President Robert J. Barrett of the National Association of Master Plumbers has named John J. Calnan, vice-president, and Edward B. Kleine and P. W. Donoghue, past presidents, as members, together with himself, of the Plumbing and Heating Industries committee of that association.

Buffalo Membership Campaign Successful

An aggressive membership campaign is being pushed by members of the Master Plumbers Association of Buffalo, N. Y., with good results. A committee of 45 of the members has taken upon itself the task of seeing every eligible plumber in the city to urge him to become a member. Fifteen new memberships were secured at the annual outing of the association and more are being received by Secretary Fred Fleischauer every day.

Camden County Master Plumbers Very Active

Much interest is being shown in the Master Plumbers' Association of Camden County, N. J., which was recently organized with the following officers: President, Edward L. Condon, Haddon Heights; vice president, John F. Mollenkof, West Collingswood; treasurer, Thomas Milnamow, III, Collingswood; secretary, Irving Chew, Haddonfield.

At a recent meeting Secretary Irving Chew reported progress towards a conference between the solicitors of the 43 boroughs in Camden County for the purpose of discussing the registration of plumbers, while Treasurer Milnamow reported that five master plumbers have been admitted into membership of the association.

The new association meets once a month in the Eagles Home, Laurel Springs, N. J.

Rhode Island Heating Contractors Elect Officers

The newly formed Rhode Island state association of heating contractors, affiliated with the Heating, Piping and Air Conditioning Contractors National Association, elected officers and directors of its unit at a meeting held recently at the Hotel Narragansett, Providence. Dexter Potter, of Smith Gibbs Co., Providence, was named president, J. F. Martin of J. F. Martin Plumbing and Heating Co., Pawtucket, vice president, and P. M. Robinson, of the Grinnell Co., Providence, secretary-treasurer. The directors elected are: Walter Mills, Rhode Island Supply & Engineering Co., Providence; Robert Drysdale, Westerly; F. C. Seymour, Warren, and Robert Graham, West Warwick.

The officers and directors were directed to prepare a constitution and by-laws and present them to the association at its next meeting.

Bureau Votes to Rely on Associations for Publicity Program

That the responsibility for the policies and the financing of the publicity program of the Plumbing and Heating Industries Bureau shall be turned over on Jan. 1, 1934, to the various associations of manufacturers, wholesalers, and contractors in the plumbing and heating industries was the decision reached at a meeting of the Bureau's board of directors held in Chicago, on Sept. 23.

The various associations already organized or being organized to draw-up and enforce codes of fair competition under the NRA are well able to assume the financing and direction of the industries' publicity program, the Bureau's board believes.

At the meeting of the board, two motions were passed. The effect of one motion is to transfer the responsibility for the financing and direction of publicity to the various associations.

The other motion provides for the drawing up of a new constitution and by-laws for the Plumbing and Heating Industries Bureau. The committee was instructed by the board to draw up a document which will place the control of the Bureau in the hands of associations, beginning January 1, 1934.

The following officers, and members of the Bureau's board of directors attended the meeting: E. B. Kleine, president of the Bureau, and formerly president of the National Association of Master Plumbers; Harry M. Hart, vice president of the Bureau, and formerly president of the Heating, Piping, and Air Conditioning Contractors National Association; John M. Kohler, Chicago manager of Kohler Co., treasurer; Charles K. Foster, executive vice president of the American Radiator Co.; R. J. Barrett, president of the National Association of Master Plumbers; Herbert V. Kohler, executive vice president of Kohler Co.; H. F. Beglen, vice president of Standard Sanitary Mfg. Co.; John J. Calnan, vice president of the National Association of Master Plumbers; Russell G. Creviston, sales promotion manager of Crane Co.; George E. Hoffman, manager of the plumbing sales division of Crane Co.; Martin Weil, vice president, Weil-McLain Co.; J. G. Hildebrand, executive secretary of the National Association of Master Plumbers; W. L. Schaeffer, advertising manager of the National Tube Co.; and Norman J. Radder, secretary manager.

The meeting was aso attended by Walter J. Kohler, president of the Kohler Co.; H. P. Reger, president of the Illinois Master Plumbers Association; Charles E. Gawne, president and Peter M. Munn, secretary, of the Plumbing Contractors Association of Chicago.

Mr. Radder, in a review of current publicity activities

of the Bureau, said that the Bureau is recognized by radio stations, newspapers, and magazines as a source of interesting, useful, and impartial information about plumbing and heating.

"Millions of newspaper and magazine readers are learning about the new developments in the plumbing and heating industries as a result of the widespread publicity which the Bureau has succeeded in giving to the exhibits at A Century of Progress in Chicago.

"While 15,000,000 people have passed through the gates of A Century of Progress, there are countless other millions who were not able to attend the world's fair. These people are hearing about the plumbing and heating exhibits through radio broadcasts and are reading about them in their favorite newspaper and magazine."

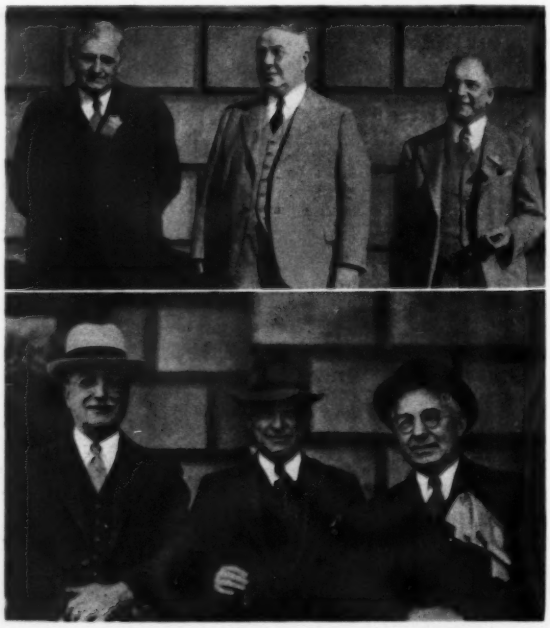
Walter J. Kohler pointed out that the publicity work of the Bureau is so impartial in its application that all units and branches of the two industries benefit equally.

President Barrett of the National Association of Master Plumbers pointed out that total sales in the plumbing and heating industries in 1930 totaled in excess of two billion dollars.

"The budget of $14,000 contemplated for publicity in 1934 is a small fraction of one per cent of annual sales. When properly divided up among all associations, the publicity assessment will be so small that it will not be a burden on any association."

President Kleine declared, "It is inconceivable to me that the plumbing and heating industries could get along without the publication of this favorable publicity in newspapers which is helping to create good-will and build sales for all of us."

President Kleine appointed the following as members of the committee in charge of revising the constitution and by-laws: Russell G. Creviston, chairman; H. F. Beglen, and John M. Kohler.



Tow row, left to right: Thomas J. Cronin, Binghamton; James J. Bresnahan and William Dechert, both of Buffalo. Bottom row, left to right: Matthew J. Kennedy, Brooklyn, president of Greater New York Association; C. W. Farrar, president of Excelso Products Corporation, Buffalo, and P. W. Schneider, Utica

William E. Foley, Richmond Hill, the new president

Report Membership Gains at New York Meeting

MASTER plumbers of New York state, members of the State Association of Master Plumbers, held their 45th annual convention at Buffalo on Sept. 12-13. The meeting was one postponed from the time of the banking moratorium last spring and because it synchronized with the present intense interest in NRA codes, attracted an unusually attentive group. A large gain in membership of the association in recent weeks was reported from all sections of the state.

Henry J. Ritter of Buffalo, who held the presidency of the association for the unexpectedly long term, was warmly congratulated on the energy with which he had filled that post. Like praise was given to W. Frank Clucas, Buffalo state secretary during the same trying period. These officers in turn showed their appreciation of the assistance given by John J. Dixon, Brooklyn, state treasurer; John F. Rogers, Flushing, N. Y., S. G. Arnone, of the Bronx, Joseph O. Stapf, Albany, John F. Skelly, Ogdensburg, Thomas J. Cronin, Binghamton and James L. Baker, Kenmore, zone delegates; William F. Cassidy, Albany, legislative committee chairman, and William Wolff, Brooklyn, past president.

William E. Foley, Richmond Hill, was elevated from the vice presidency to the post of state president, on the nomination of Jacob Stockinger. Joseph O. Stapf was elected vice president; Mr. Dixon was re-elected treasurer. Mr. Foley chose N. P. Donohoe of the Queens association, as state secretary.

Buffalo had worked hard to insure a successful convention and the results, both in the program and in the social activities, were such as to win the cordial approval of the visitors. August Ebke was chairman of the convention committee; Allan A. Westphal was vice chairman; Fred L. Yuhl, secretary-treasurer. Among the members assisting in handling the meeting were Fred Fleishauer, Arthur C. Huck, Henry M. Dechert, William G. Maurer, William Ludlow, William Dechert, William C. Maunz, William A. Keller, C. H. Brenner, Julius G. Irr, A. Kirkpatrick, George D. Clucas, George Lochner, Fred N. Jones, Roy L. Noah, Thomas J. Kavany and Allen Smeader.

Robert J. Barrett, president of the National Association of

Henry J. Ritter, Buffalo, retiring state president

Master Plumbers, attended the convention and discussed fully the situation surrounding the various codes proposed for branches of the plumbing and heating industry and their effect on the plumbing contractor. Abstracts of his address are given on Page 28 of this issue.

Among the members who took an active part in the meeting were Matt J. Kennedy, president of the Greater New York Association of Master Plumbers; William Ludlow, vice president of the Buffalo association; George W. Frank of Buffalo, chairman of the resolutions committee and former national secretary; Jere L. Murphy, of New York, chairman of both the national and state standardization committees; John D. Cooley, New York, chairman of the committee on sanitation; George H. Drake, Buffalo, chairman of the special national committee on the code of fair competition; Charles F. Fritz, Freeport, chairman of the apprenticeship committee; William D. Atkins, Schenectady, chairman of the education committee; Lother F. Gressens, Rochester, chairman of the welding committee.

The convention committees which handled the work of the convention included: Resolutions—George W. Frank, Buffalo, chairman; P. W. Schneider, Rochester; Alex Auchinachie, Binghamton; Frank Roth, Bronx and William Metcalf, Nassau County; Memorial—Frank F. Schimpf, Albany, chairman; H. Witte, Utica and C. W. Stackhouse, Olean; Auditing—S. G. Arnone, Bronx, chairman; Frank Rinehart, Syracuse and Fred Uhl, Buffalo; Credentials—Thomas J. Cronin, Binghamton, chairman; Jacob Stockinger, Queens and James Larkin, Rome. Fred N. Jones of Buffalo was reading clerk.

Speakers from outside the association included J. H. Van Reinan, sales production manager of the New York Power & Light Co.; Fred W. Zander, manager of the Crane Co. at Buffalo; Prof. Walter S. L. Cleverdon, associate professor of sanitary engineering at New York University, whose talk on water hammer is given on Page 40 of this issue; Nathan J. Higinbotham, president of the W. A. Case & Son Mfg Co., Buffalo; Hugh Cuthrell of the Brooklyn Union Gas Co., chairman of the National Dealers Co-Operation committee of the American Gas Association and G. Reed Salisbury, chief, industrial marketing section, domestic commerce division of the department of commerce at Washington, D. C.

Abstracts of some of the addresses of general interest will be reported later in DOMESTIC ENGINEERING. Mr. Van Reinan and Mr. Cuthrell outlined the present situation with regard to public utilities and their merchandising plans and the programs of some utilities of co-operating with dealers. A trend toward closer co-operation with dealers and in some cases, the retirement of the utility from merchandising, is indicated. Mr. Zander showed the value of the spirit of co-operation which present developments are stimulating. He urged membership in trade organizations. Mr. Higinbotham outlined forcefully the trend in code activities and the need for correcting fundamental faults in the distribution of plumbing and heating products. Mr. Salisbury gave an interesting account of the importance of plumbing to the social and physical well being of the country. He told of the wealth of data in government records at Washington, illustrating by examples how positively such data can be utilized to show the healthful effects of better plumbing since sections with proper sanitation facilities have better health records than those without.

Officers and members of the state auxiliary also convened at the same time. Mrs. Joseph O. Stapf of Albany is head of the state association. Arrangements for the auxiliary meeting were carried out by the Buffalo members, working with Mrs. Julius G. Irr, president of the local auxiliary.

R. H. Pflug-Felder Honored by Philadelphia Master Plumbers

The Master Plumbers Association of Philadelphia, Pa., held its regular monthly meeting September 8, with President George M. Hicks in the chair.

Secretary Robert H. Pflug-Felder read a letter from Chief Packer of the Bureau of Health, stating that the city plumbing inspectors would make a canvass of every tap room in Philadelphia, check up on the installations and give a complete report on the sanitary conditions. From the reports already received, Chief Packer predicted that this would help the plumbers to secure a large amount of repair and replacement business.

Walter Raid, chairman of the membership committee, reported that many applications had been received and that he was glad to add that several more were present at this meeting to be voted upon. As they all came up to all requirements, they were all admitted and given a hearty welcome.

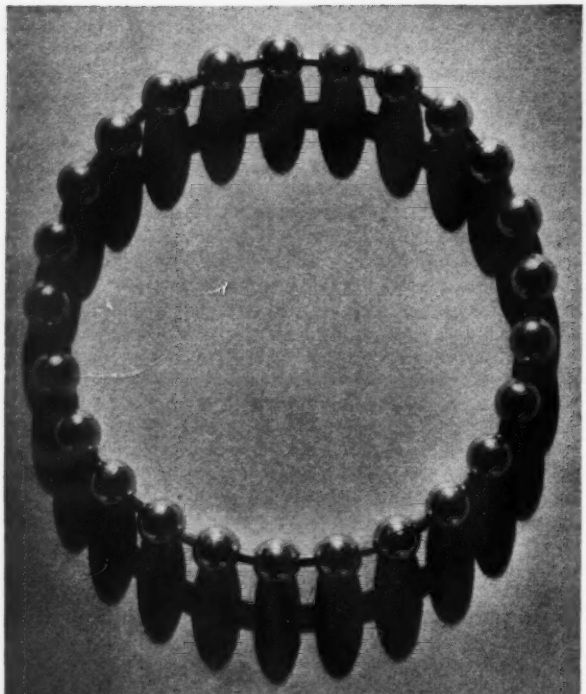
Edward Quaid of the Gas Committee told about a recent meeting, at which G. W. Shock of the Philadelphia Gas Works Co. presided, and which was attended by nearly one hundred master plumbers. He also reported that by the aid of the Master Plumber and Philadelphia Gas Works Dealership Plan 225 gas units were sold during August, these sales amounting to $75,000. He urged all his hearers to work on this plan.

David S. Sanderson, past president of the Pennsylvania Master Plumbers' Association, was the next speaker. He urged all present to support the association and to follow the code of the National Recovery Act. He also told of the work of the Philadelphia Suburban Association and about its large increase in membership.

Harry L. Stilwell, Sr., of the educational committee introduced his son, Harry L. Stilwell, Jr., who gave a very interesting blackboard talk on "Overhead," in which he advocated that Philadelphia's slogan should be "25% + 10%."

Secretary Pflug-Felder reported that his questionnaire had been answered by 66⅔ per cent of those to whom it was mailed. He felt honored by the confidence these men had shown him by telling him their cost of doing business and the amount of business done. The replies showed:

39 doing a business of less than $5,000 per year.
46 doing a business of from $ 5,000 to $ 10,000 per year.



WHEN making plumbing repairs, watch for old and broken chain and stoppers. Bead Chain and stopper replacements will help your profits and please the owner of the building.

When bidding, estimating or drawing specifications—figure on Bead Chain. It is standard with all the important plumbing fixture manufacturers—and for furnace and ventilator controls, Bead Chain is ideal.

USE
BEAD CHAIN
FOR PLUMBING

Trade Mark Reg. U. S. Pat. Off.

THE BEAD CHAIN MANUFACTURING CO.
Bridgeport Connecticut

Wm. Mour of Batt Co., Buffalo, and Chester Bess of Pittsburgh Valve & Fittings Co., Barberton, Ohio, at New York Plumbers Convention

61	doing a business of from	10,000	to	20,000 per year.
33	doing a business of from	20,000	to	30,000 per year.
38	doing a business of from	30,000	to	50,000 per year.
14	doing a business of from	50,000	to	100,000 per year.
9	doing a business of from	100,000	to	200,000 per year.
10	doing a business of over	$200,000	per year.	

Based on the replies received the 66⅔ per cent who answered are under present conditions doing a total business in Philadelphia amounting to $12,773,955. Adding the business of those who did not answer—33⅓ per cent—it would on the same basis mean that the plumbing and heating contractors do between 19 and 20 million dollars worth of business each year in Philadelphia.

Mr. Pflug-Felder also exhibited the overhead charts, which he presented to the association twenty years ago, and he added: "Tonight marks my twentieth year as secretary of the Master Plumbers' Association of Philadelphia." This brought him three enthusiastic cheers and a rising vote of thanks from all those present.

It was thereupon decided that the talks on overhead should be continued, and Mr. Pflug-Felder asked the members to send in some jobs they had figured so that they could discuss them from the floor at the next meeting.

A telegram from Robert J. Barrett of Washington, D. C., president of the National Association of Master Plumbers, containing the latest development on the code, was read by Secretary Pflug-Felder, whereupon the meeting adjourned.

Acetylene Association Meets

The International Acetylene Association held its 34th annual convention at Chicago on Sept. 26 to 29. The program, opening with the presidential address by E. J. Hayden of the Linde Air Products Co., presented a clear picture of the oxy-acetylene industry, its growth, its relation to railroads, in education and research and in relation to modern metals and alloys. The many papers reflected the growth and the important relationship to other fields, of the oxy-acetylene industry.

Rockaways Plumbers Meet

The Association of Master Plumbers of the Rockaways recently held a well attended meeting to discuss NRA developments. William McNaught, president, told of the sustained growth of the organization since its start in January and the many benefits it had secured for the plumbing industry. This new association is said now to represent 90 per cent of the licensed master plumbers in the Rockaways and Broad Channel area.

Chicago-Milwaukee Master Plumbers Golf Tournament

The Inter-City Golf Tournament between the master plumbers of Milwaukee and Chicago was held at the Columbian Golf Club at Wheeling, Ill., on Thursday, September 7, with 84 master plumbers and supply men in attendance, of which 70 took part in the golf tournament, 48 from Chicago and 22 from Milwaukee.

Milwaukee won the tournament by a very narrow margin, its score being 104.84, and Chicago's 104.87. Milwaukee Plumbing and Heating Club will therefore retain the trophy, and Chicago will keep the duffers' cup for another year.

After a good dinner at the club house in the evening, the scores were announced and the prizes awarded.

Among those James W. Fettes, chairman of the Chicago Plumbing Contractors' Golf Association, called upon for a few remarks were John J. Calnan of Chicago, vice president of the National Association of Master Plumbers; Henry P. Reger, president of the Illinois Master Plumbers' Association; Charles E. Gawne, president of the Chicago Plumbing Contractors' Association; Louis Schmaus, president of the Plumbing and Heating League of Milwaukee; David Stern, vice president of the Wisconsin Master Plumbers' Association, and Louis Friend of Milwaukee.

Wm. J. Spillane of Chicago, chairman of the Wholesalers' Committee under the National Recovery Act, in a short talk advised the members of the plumbing fraternity to be patient until the code for this industry has been adopted.

Wm. Redieske was the official scorekeeper and his assistants were Clarence Pullum and George Matthews. Mr. Redieske announced the winners of the various events, and Secretary Peter M. Munn distributed the prizes.

The winners from Chicago were:

Class A: H. W. Mollison, W. J. Sievert, William Love and Jas. Comer.

Class B: John Bushnell, John Guldan, E. G. Groves and J. A. McCallum.

The winners from Milwaukee were:

Class A: Geo. F. Reeke, G. W. Wilson, A. J. Brillmeier and L. Weinhagen.

Class B: N. W. McCormick, Geo. Van Ewey, P. C. Downey and A. M. Wagner.

James W. Fettes won the special blind bogey prize, and Henry P. Reger won a special attendance prize.

The winners of each flight were awarded a set of small brass cups in leathers. These winners were: F. R. Cordes, Wm. K. Glen, George Stoehr, E. C. Wagner, Frank Fabbri, Charles Gunther, Ralph Lindblad, W. F. Hildeman, J. Stanfield, Ralph Reedy, Carl Grieble, Wm. Impey, H. Burr, J. E. Fitzgerald, Frank Glass, Edw. Stickler, Robert Sells, G. C. Hagebloom, Harry Ryan, Perry Russell, Charles Dreier and Otto Waskow.

Southwestern Trade Golfers at Victory Hills

The regular monthly tournament of the Southwestern Trade Golf Association was held at the Victory Hills Golf and Country Club in Kansas City, Kansas, on Wednesday, September 20, with a good attendance.

The prize winners in Class A were:

First prize, Frank Scoles of W. B. Young Supply Co., net 66; second prize, Chas. E. Harris, net 70; third prize, Carl Smith, net 71.

The prize winners in Class B were:

First prize, Walter Wiedeman of U. S. Supply Co., net 67; second prize, F. O. Piepenbring of the W. B. Young Supply Co., net 69; third prize, John Karges, net 74.

Birdies were scored by W. J. Liggett of J. A. Liggett & Sons, 1; Frank Scoles of W. B. Young Supply Co., 2; R. L. Dawson, 1. B. M. Snook won blind bogey with 85.

THE LEADER

TANK Balls and Tank Floats are necessities which you are supplying from day to day, either at the calls of your customers or upon your visits into their homes. There are a lot of tank balls and a lot of tank floats, but in the matter of *profit to you* there is one tank ball that stands head and shoulders over all others. Write immediately and we will tell you a profit story of importance to you.

THE LEADER

The Reichert Float & Mfg. Company — 2238 Smead Ave., Toledo, Ohio

A NEW INVENTION

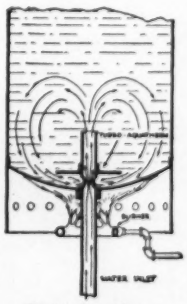
For Range Boilers and Hot Water Storage Systems

DAHLQUIST - TURBO

Super Aquatherm Gas Underfire

The new Dahlquist copper automatic hot water storage systems and range boilers use 50% less gas and deliver an abundance of clean, fresh, rust and sediment-free hot water day and night.

Copper is nature's own material for storing hot water; never rusts or deteriorates. But regardless of the metal used, sediment in the water will form a coating of mud on the bottom unless it is equipped with Theodore W. Dahlquist's latest invention—THE TURBO.



Turbo-Aquatherm

A new patented device which prevents mud from accumulating in the boiler.

SAVES GAS

The patented TURBO placed in all Dahlquist's boilers at no extra cost, prevents mud from forming — keeps water clean—prevents costly burnouts —reduces cost of gas.

Architects and heating engineers may rely entirely on Dahlquist workmanship and experience, whether for range boilers, automatic storage boilers or heavy pressure boilers.

DAHLQUIST MFG. COMPANY

60 West 3rd Street So. Boston, Mass.

The White House Pool

(Continued from page 45)

In addition to the clarification of the water by filtration, the recirculated filtered water is sterilized before entering the pool, so that only clean, clear, sterile water, of the desired temperature is discharged into and maintained in the pool. The sterilizing apparatus automatically proportions a predetermined amount of sterilizing solution to the recirculated water as it passes from the filter to the pool. The proportioning device is actuated by an accurate water meter, causing the rate of application of the sterilizing agent to automatically increase or decrease with a changing recirculation rate, and automatically starting and stopping with the flow of water through the system. The pool water is not only sterilized as it recirculates, but also contains an available sterilizing residual which by its presence in the pool itself would serve to counteract any infection that might be introduced from outside sources.

VALVES ARE TAGGED AND CHARTED

Each valve is tagged and charted for proper location and operation. The valves on the filter are, in addition, equipped with name plates, specifying the particular function of each, these functions being set forth on a framed set of operating instructions.

Particular attention was paid to the drainage of the pool itself, the surrounding walkway, the dressing rooms, and the showers. Two four-inch angle type outlets were used at the bottom and discharge end of the pool at the deepest portion. Arranged around the pool at regular intervals are twelve scum gutter drains, connected directly to the sewer. Eight pool inlets, all individually valved, to permit accurate distribution, are installed just below the water line of the pool. The deck around the pool is graded slightly away from the edge, towards a series of floor drains. Each dressing room and shower bath is separately drained.

The only visible evidence of the room heating system is the grilles through which the warm air enters. Radiators of the concealed type were built into the walls of the rooms. The enclosures are of the removable type. A metal panel covers the entire radiator recess, a feature being its construction in two sections, the lower of which, when removed, provides easy access to the radiator valve and trap, or removal of the radiator.

All radiator runouts are doubly controlled, a gate valve being installed in the pipe tunnel, close to the supply or return main, with a second valve at the radiator, for adjustment at that point. Also each radiator enclosure is provided with a damper for the purpose of varying the heat supply. This damper may be set in any position, and is knob operated.

All of the radiators in the swimming pool room are fitted with key-adjusted regulating fittings of the orifice type, the purpose being to provide a means of balancing the steam supply so that it will flow to the various radiators in proper proportion, and at substantially the same time. These fittings can be adjusted to any desired rate of steam flow, after the installation is fully completed and while the system is in operation. The return ends of all radiators are equipped with thermostatic traps. Ends of mains are fitted with float and thermostatic traps, strainers, and cut-off valves.

The heating lines throughout are insulated with 85 per cent magnesia, sectional pipe covering, the outside

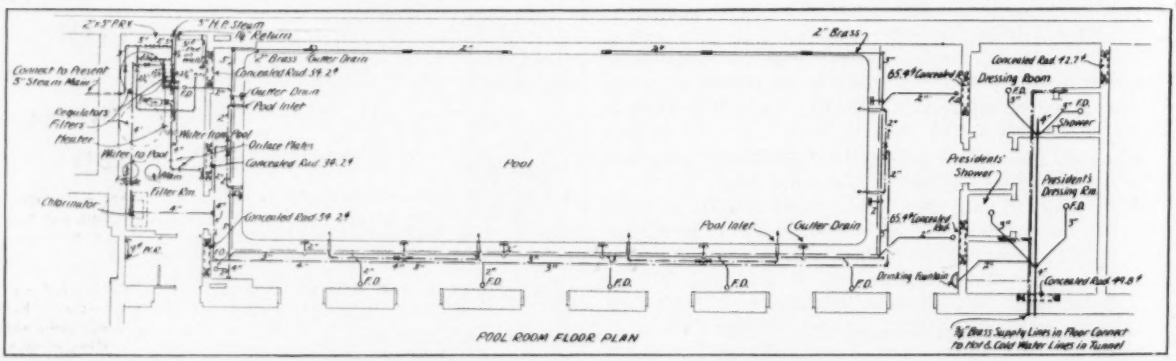


Fig. 4—The floor plan at the pool room level is shown here. The President's rooms are at the right end of the pool while the equipment is located in a special room at the left end

underground lines being double thickness with waterproof wrapping. All lines in the machinery room are canvased and stitched, in some cases galvanized iron forming a further protection, over the insulation.

Four of the French door openings at the south side of the swimming room contain capped radiator runouts, in boxes having chromium plated covers set flush with the door sills. These outlets are designed for the installation of additional radiation if required.

As to the shower baths, controlled shower and needle baths were installed. Side spray heads and an angle overhead shower are used with controls arranged to permit operation of either or both, at the pressure de-

sired. There is a short nozzle placed six inches above the floor of each shower stall for testing the water temperature with the foot. Various accessories used in the dressing rooms include towel, baskets, shelves, towel pins and racks, tumbler holders and medicine cabinets.

In the pool room there is set an indicating thermometer with direct reading from 30 degrees to 120 degrees. The bulb for this is in the discharge line from the bottom of the pool. The instrument is adjusted from a panel board in the machinery room. The operating current is supplied from a compensated air cell, a new type of battery recently developed. The temperature of the air, or of the wiring, has no effect upon the instrument itself. For the operators' convenience, a dial type thermometer has been set into the main supply to the pool, in the machinery room.

The project was handled under the direction of Major D. H. Gillete, Engineering Division of the Office of Public Buildings and Public Parks. The mechanical installation was made by the Reliance Engineering Company of Washington, D. C., and Charlotte, N. C. General contractors were the James Baird Company of Washington. Pipe covering and insulation was done by Reid-Hayden, Inc., of Washington and Baltimore.

New Trade Literature

Announcing a New Cleaner and Polish

The Brunswick-Balke-Collender Co. of Chicago has published a circular describing its new toilet seat polish and cleaner, which is sold in a package of convenient size for home use.

Circular on Water Circulators

Watts Regulator Company of Lawrence, Mass., has issued a circular with descriptions and illustrations of its line of balanced flow water circulators, which have been designed to meet the demands of quietness and efficiency on either hot water heating or domestic hot water residence installations.

Circular About Air Valve Sales Display

The James P. Marsh Corporation of Chicago has issued a circular describing its new air valve sales display with a "serve yourself" feature. When placed on the counter, this new display permits the purchaser or prospect to serve himself—whereupon removal of one valve causes another to automatically take its place.

New Literature from McDonnell & Miller

McDonnell & Miller of Chicago, Ill., have recently published a condensed catalog of their heating specialties as well as several leaflets for the use of contractors as sales helps. The catalog features the company's line of automatic boiler water level controls and low water cut-offs, while the leaflets bear the following titles: "Quit Worrying about the Boiler Water Level," "It Happens in the Best of Families," "You Paid for That Easy Chair—Hold It," and "Automatic Boiler Water Level Control."

New Pipe-Welding Book

The Linde Air Products Company of New York City has just published and is now distributing "Fabrication of Oxwelded Piping," a 160-page book, which explains how to make strong joints with a small outlay for welding rods and gases, how to design, lay out, construct, erect and maintain a welded piping system. Step-by-step procedures for oxy-acetylene welding steel, cast iron, copper, brass, and lead piping and for making fittings right on the job con-

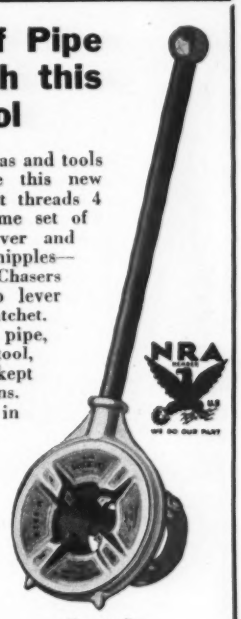
Thread 4 Sizes of Pipe ACCURATELY with this one RIDGID Tool

ON the job—that's where new ideas and tools stand or fall. That's where this new RIDGID has proved itself. . . . It threads 4 sizes of pipe (1" to 2") with same set of chasers—true accurate threads, over and under size, drip threads, short nipples—iron, cast iron, steel, brass pipe. Chasers set to size mechanically. Thumb lever opens chasers, same time reverses ratchet. Set work-holder to size, put on pipe, tighten one screw. Well balanced tool, light but powerful, enclosed, easily kept clean. One and two-handle patterns. Important time and trouble saver in any kit.

Other Unusual RIDGID Tools

RIDGID makes also new ratchet and three-way threaders, pipe wrenches, cutters and vises—all with distinctive advantages. Ask your jobber.

THE RIDGE TOOL CO.
ELYRIA, OHIO, U. S. A.



No. 65 R.
With two handles,
No. 65

RIDGID
PIPE TOOLS

DEVLIN fittings
IN CARTONS AND IN BULK

Devlin Fittings and Fretz Nipples are Packaged for Profits. Made up in many practical assortments. Easy to handle, no loss, no loose pieces. Every item is guaranteed for high quality and precision workmanship. Sold also by the barrel and in bulk.

NRA
WE DO OUR PART

Thomas Devlin Manufacturing Co. Inc.
Burlington, New Jersey

DEVLIN fittings
fretz nipples

More important than the gasket is the filling of SMOOTH-ON No. 3.

SMOOTH-ON No. 3 fills every void in gasket and flange face with a metallic deposit which cannot shrink, shrivel, crack, dry or blow out.

At a cost of perhaps a cent or two more per joint, this protection usually averages paying a dollar or two in lessened line maintenance expense.

Write for the Smooth-On Handbook and get Smooth-On No. 3, in 1 or 5-lb. can from your nearest supply house.

SMOOTH-ON MFG. CO., DEPT. 2
570 Communipaw Ave., Jersey City, N. J.

***Do it with* SMOOTH-ON**

MADE FOR LONG RUGGED SERVICE

Boiler Tube Cleaners, Flue Brushes, Wire Heater Brushes, Handy Cleaner Brushes, Fire Brooms, Track Brooms.

Tempered Steel

The Worcester line is complete. Catalog gladly sent upon request.

WORCESTER BRUSH and SCRAPER CO.
10 AUSTIN STREET :: WORCESTER, MASS.

tribute to the usefulness of this book, in which 75 illustrations and 20 ready-reference tables explain every problem connected with the welding of building and industrial piping. Other features are chapters on testing and qualifying welders for pipe work; on inspection methods while pipe welding is in progress; on methods of testing welded joints, and on estimating costs.

Bulletins from Decatur Pump Co.

Decatur Pump Company of Decatur, Ill., is distributing two bulletins, No. 99-A and No. 101. The former features a 1933 model water system in sizes with a pumping capacity ranging from 300 to 500 gallons per hour, while the latter describes and illustrates the company's condensation return units.

Issues List of Wrought Nipples

Iroquois Nipple Works, Inc., of Buffalo, N. Y., has issued a new list of its wrought nipples, including standard wrought nipples, galvanized right hand nipples, black right and left nipples, and galvanized right and left nipples.

New Engineering Data Sheet

Dail Steel Products Company of Lansing, Mich., has issued two engineering data sheets of special interest to air conditioning engineers and contractors, one for fan blast heating, and the other for calculating the cooling load. It is stated that the use of the latter sheet will eliminate considerable calculation on the part of the estimator, and will make the calculation much easier.

Bulletin on Arc Welders and Accessories

Universal Power Corporation of Cleveland, Ohio, has issued two bulletins, Nos. 1056 and 1057, describing and illustrating its line of arc welders and arc welding accessories. Its accessories include head helmets, face shields, electrode holders, weld goggles, weld scratch brushes, leather and duck aprons, leather and asbestos gloves, and leather sleeves.

New Catalog of Pipe Tools

The Nye Tool & Machine Works of Chicago has issued its catalog No. 33, describing and illustrating its line of pipe tools, including stocks and dies, pipe cutters, post chain vises, bench pipe vises, self-locking clamp vises, vise stands, steel tool chests, ratchet reamers, bit brace reamers, pipe taps, combination tap and drill, wiping cloths, pipe threading oil, portable power pipe threading machines, and accessories. The catalog consists of 68 pages, 6x9 in. in size.

Data Book on Valves

Jenkins Bros. of New York City have issued their catalog No. 23, a 264-page book containing a large amount of information about valves and valve layout. Not only does this book cover 400 of this concern's valves, in a wide range of types and patterns, but it gives also complete details. All features of design and construction are clearly and fully described. Full information is given about the metals used in making the valves. Services, pressures, temperatures and fluids, for which the valves are recommended, are stated. The last section of the book contains many pages of engineering data that is needed where valves are used.

New Booklet on Air Conditioning

American Radiator & Standard Sanitary Corporation of New York City has published a most attractive booklet on air conditioning under the title of "Romance of Air," consisting of 32 pages, 5½x8½ in. in size, and dedicated to the better health and greater happiness of every reader. The booklet is divided into chapters on the following subjects: Artificial Heat, Humidification, Ventilation, Air Cleaning, Cooling and Dehumidification. In conclusion, it also touches briefly on the subject of noise elimination.

Information About Single Pipe Vapor Heating

Gorton Heating Corporation of Cranford, N. J., has issued a folder illustrating and describing its appliances for single pipe vapor heating systems and its surevent equalizing valve. These appliances are radiator units, vapor equalizing valves, air eliminators, vapor gauges, and a vapor draft regulator with lever, weight, chain and two pulleys.

Circular on Plastic Porcelain Cement

Technical Products Co. of Pittsburgh, Pa., is distributing a circular announcing a new plastic porcelain cement in powder form, which mixes with water to a putty and which is said to set in a few hours to a hard, white, water-proof body resembling porcelain in appearance and properties. It is designed for cementing built-in fixtures, fastening porcelain handles and other uses where a water-resistant self-setting cement is needed.

Circular About a New Reseater

Tru-Seat Corporation of Cleveland, Ohio, has issued a circular about its new precision reseater, illustrating and describing it in detail. This device consists of a self-centering adjustable clamping fixture, guide bushing, extension tool holder, swivel handle, combination tap and surfacer, seat plug, and removable seat and fibre washer. This new device is designed for use in installing or replacing removable seats in faucets.

Circular on Triple Duty Boiler Unit

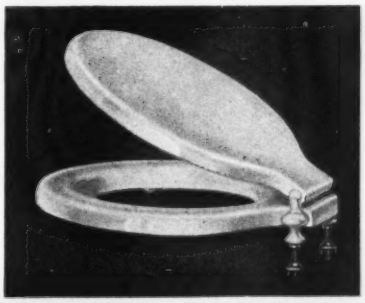
Bell & Gossett Company of Chicago, Ill., has issued a circular describing and illustrating its triple duty boiler control unit for hot water heating boilers, that will make a hot water heating plant produce a domestic hot water supply both summer and winter. This unit can be used with any size indirect water heater, and it may be used in vertical or horizontal position, with all types of hot water heating boilers regardless of the method of firing, or kind of fuel. It requires no air valves or vents, and its flow and return valves are equipped for automatic or manual control. Its double check valve feature provides assurance against reverse boiler water circulation. Its two value capacity motor is cradled in rubber which eliminates vibration and single phase hum. Other features stressed in the circular are: Streamline design, nonbreakable universal joint, centri-force impeller, flanges of chrome nickel alloy, and oil seal packing gland.

Catalog of Centrifugal Pumps

The F. E. Myers & Bro. Co. of Ashland, Ohio, has issued catalog C. T. 34, featuring a new line of centrifugal pumps, which are available in capacities of from 20 to 700 gallons per minute, and for operation against heads up to 120 ft. The cases and impellers can be furnished in either cast iron or bronze and shafts may be either plain steel or stainless steel. Power may be applied by flat belt, V-belt or direct connection through a flexible coupling. The source of power may be a line-shaft, engine or motor. Suitable gasoline engines or electric motors will be furnished and mounted, complete with suitable drive on one base when desired. These pumps are of the horizontal, single suction and single stage type, and their applications include irrigation, drainage, circulation of hot or cold water or brine, swimming pools, unwatering excavations, general water supply and many other services. Tables of capacities, speeds and horsepower are included in the catalog.

Circular Announces New Lubricant

Armite Laboratories of 1450 East 61st street, Los Angeles, Calif., has just issued a circular announcing a new lubricant in which metallic lead is the protective element. The lead has been broken down into such finely divided parts as to be virtually a soluble or liquid lead within a lubricant



BRUNSWICK sells only through plumbers!

Buy from a House That Protects Your Interests!

Many different trade-outlets are robbing the plumber of business that once was his exclusively. They threaten his very existence. When you specify Brunswick equipment, you are helping to protect your livelihood.

NRA WE DO OUR PART

THE BRUNSWICK-BALKE-COLLENDER CO., 623-33 S. Wabash Ave., Chicago

Brunswick

WHITE SEATS PYRALIN SEATS
WHALE-BONE-ITE SEATS

EQUAL TO ANY TASK

Below: Lapped-In Head Construction

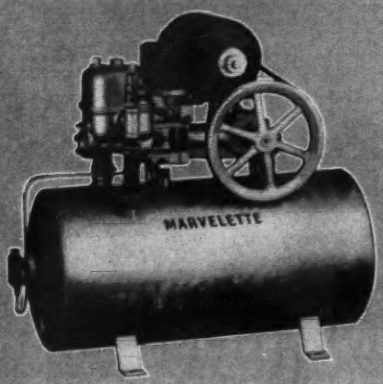
NRA WE DO OUR PART

For ruggedness, durability, resistance to leakage and wear—use a PENNSYLVANIA. More all around satisfaction and surer Profits.

PENNSYLVANIA RANGE BOILER COMPANY
Established 1895
24th & Washington Ave. Philadelphia, Pa.

A complete line of
ALL WELDED
RIVETED and WELDED GALVANIZED
and Everdur COPPER BOILERS
SOLD THRU JOBBERS

PENNSYLVANIA RANGE BOILERS



"MARVELETTE"

—the only water system with *"Full Cushioned Power"*— (pump mounted on rubber cushions). Noiseless in operation.

Capacity 260 gallons per hour—Repulsion Induction Motor—Air Volume Control—Stainless Steel Piston Rod.

Write for catalog showing complete line of Hand and Power Pumps.

The Deming Co.

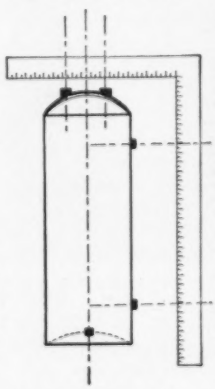
Est. 1880 Salem, O.

"Pigs May Be Pigs," But—

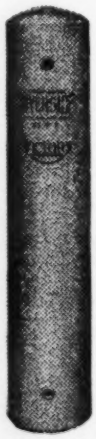
there are Galvanized Boilers--and there are RIVERSIDE GALVANIZED BOILERS

There is a difference. Riversides are backed by nearly a half century of fine boiler making . . . backed by quality, experience and nationwide acceptance and *built* by a manufacturer who knows how to build boilers to meet the most exacting specifications.

"Steel Square" Construction



Long ago Riverside discarded the "rule of thumb" method for putting in and tapping spuds. Heads and bottoms of Riversides have integral spud construction, eliminating possible water leakage through the spuds. Side spuds, top and bottom spuds are accurately tapped by specially designed modern machines. None but perfectly aligned spuds at right angles are the result. The elimination of cock-eyed spuds insures an installation you will be proud of. And your customer will say "There's the job of a real mechanic".



Attractive two-color mailing piece entitled "Pigs may be Pigs" but RIVERSIDE Galvanized Boilers are NOT Just Boilers," will be sent with your imprint, free of charge. Slip them in your invoices and they will "pep up" your sales. Sold exclusively through wholesalers of plumbing supplies.

RIVERSIDE BOILER WORKS, INC.

CAMBRIDGE (*Since 1889*) MASS.

vehicle. The new product forms a thin protective film of lead on all contacting surfaces which changes such surfaces to continuous unbroken, antifrictional area, according to the manufacturers. The principal application of the product in the plumbing and heating industry is for use as a pipe thread lubricant, also for pumps and valve stem packing, plug cocks, etc.

Catalog of Streamline Pipe and Fittings

Streamline Pipe and Fittings Co. Division of Mueller Brass Co. of Port Huron, Mich., has just issued a 60-page catalog, 8½x11 in. in size, describing and illustrating its streamline copper pipe and fittings for plumbing, heating and industrial use. Among the products given special attention in this catalog are: Couplings, elbows, tees, bushings, nipples, ear elbows, ear tees, range boiler couplings, range boiler elbows, eccentric couplings, crossovers, flanged sink elbows, water meter elbows, short type wash tray sink tees, unions, range boiler dip tubes, sweeps, offsets and return bends, pipe hangers and expansion loops and bends, drainage fittings, solders and fluxes, sizing tools, etc. Steamline products have been installed in many buildings of all types of building construction in the United States and Canada, and one section of this catalog is devoted to reproductions of photographs of many of these buildings.

Catalog of Pumps and Pumping Equipment

Chicago Pump Company of Chicago, Ill., has issued a 400-page catalog, consisting of about forty individual bulletins, each confined to one particular line of pumps or equipment, all bound together in a neat, strong loose-leaf binder. A special bulletin in the catalog tells how to select a pump for a given service, and much valuable information on pumps and hydraulics as well as engineering tables have been brought together in this one bulletin for ready reference. Each bulletin contains tables and engineering data pertaining to that particular line of pumps. The catalog describes and illustrates the following lines of pumps and equipment: Sewage ejectors, bilge or sump pumps, electric cellar drainers, screw feed sludge pumps, horizontal centrifugal pumps, hot or cold water or brine circulating pumps, vacuum heating pumps, condensation pumps, pneumatic water systems, aerators, liquid samplers, comminutor or chopper screens, speed screens, water seal pumps, automatic alternators for duplex pumps to transfer the operation automatically from one pump to the other.

Catalog of Plumbers' Brass Goods

Bridgeport Brass Company of Bridgeport, Conn., has issued a new catalog of plumbers' brass goods, consisting of 106 pages, 8½x11 in. in size, and containing many new items as well as standard articles that have been revised to conform with present day specifications. The first part of the catalog is devoted to illustrations and descriptions of traps, accompanied by roughing-in measurements. The next section features basin plugs, sink plugs, sink plug tail pieces, extension tubes, sink funnels, basin wastes, bath waste and overflow, overflow and waste strainers, overflow drain for beer equipment, sink and wash tray combinations, with roughing-in measurements, angle basin supplies, wheel handle and loose key lavatory stops with stuffing box, reducer couplings, etc. The last section illustrates and describes seamless low down tank bends, seamless straight tank connections, seamless offset closet connections, brass nipples for traps, slip joint elbows, shower curtain rods, shower accessories, chain stays and faucet hole covers, flanges or escutcheons, closet bolt combinations, washers, closet floor flanges, closet spuds and spud reducers, seamless brass tubings, nickel silver bead chains, etc. Several valuable tables of sizes, weights and circumferences of brass and copper tubing as well as a chart for figuring brass pipe weights are included.

Women's Activities

By DOROTHY EDWARDS

Detroit Auxiliary Entertained at Walled Lake

Mrs. M. Mesnard recently entertained the Detroit women's auxiliary at her summer home at Walled Lake. A profusion of flowers decorated her porch and, after a lovely luncheon, bridge was played with prizes being won by Mrs. M. Marquardt, Mrs. Nellie Hughes and Mrs. Lola Brabyn. After a walk through the garden and to the lake, supper was served. Every one agreed they had a delightful day and were pleased to see each other again under such pleasant conditions. The first business meeting of the season was held on September 5. Plans were made for a few social affairs.

Cincinnati Auxiliary Aids Students' Loan Fund

The Women's Auxiliary of Cincinnati, Ohio, held its regular meeting in the Conference Room of the American Building in that city on Tuesday, September 12. The meeting was held one week later than usual on account of Labor day. The auxiliary authorized the treasurer to mail a check for $25 to Mrs. Emily Hornbrook, treasurer of the Students' Loan Fund. This amount was pledged towards this fund by the Cincinnati Auxiliary at the recent convention of the National Women's Auxiliary, held in New Orleans, La.

Denver Auxiliary Opens Season

The Women's Auxiliary to the Denver, Colo., Master Plumbers Association held its first meeting of the season at the home of Mrs. V. A. Kandorf. Seventeen members sat down to a lovely luncheon at 1 p. m. Birthday cards were given to Mrs. Kiser and Mrs. Bordeau. The business meeting was called to order by Mrs. Cooper, president, after which cards were played with honors going to Mrs. F. X. Kriedl. Mrs. Julia Hensler won the hostess prize.

Ogden Auxiliary Enjoys Picnic

The annual picnic held by the Ogden, Utah, Plumbing Engineers and Auxiliary took place on August 12 at Lorin Farr Park. The crowd gathered during the afternoon and passed the time with conversation and card playing. A delightful picnic supper was served on a long table. The early evening was enjoyed by the younger folks and small children who took advantage of the park and playground diversions.

Pasadena Auxiliary Plans Winter Activities

The Pasadena, Calif., Women's Auxiliary held its monthly meeting on September 15th at the home of Mrs. George Richardson, 295 South Hill avenue, with nine in attendance. During the business meeting, plans were made for winter activities. Later a covered dish luncheon was served at a table decorated with baby dahlias. On October 20, Mrs. W. H. Swihart, 1316 North Wilson avenue, will entertain.

Alameda County Auxiliary Plans Busy Year

The members of the Alameda County (Calif.) Auxiliary met August 21, following their customary summer recess, outlining their schedule for the coming season. Much enjoyment was added to the affair by reason of the hospitality of Mrs. W. H. Picard of Oakland, whose beautiful home and flowered patio made a delightful setting for the gathering.

SEND FOR THIS *New* MARSH CATALOG

GAUGES—INSTRUMENTS AND HEATING EQUIPMENT

For 68 years, the Marsh line of gauges, instruments and heating equipment has been characterized by quality materials, careful workmanship and engineering skill for adaptability and performance. Many items have been recently added and the complete line is offered for your consideration in our new catalog No. 68. Write for your free copy today!

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Home Office: 2075 Southport Ave., Chicago, Ill.
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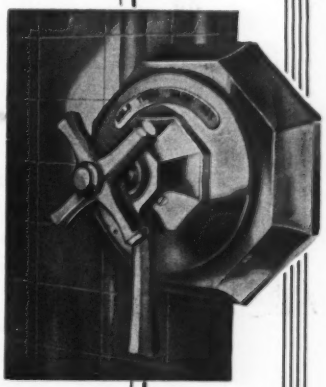
LEONARD
Water Mixing
VALVES



A complete water mixing valve built for long service. It is the sure way of controlling water temperatures and effecting noticeable water savings.

Easily installed. Exposed parts finished in rustless chromium plating and are of neat modernistic design.

Manufactured by
LEONARD-ROOKE CO.
Incorporated 1913
Providence Rhode Island

NO-SOL COPPER FLOATS

4"x3" Oval Float

QUALITY MERCHANDISE *does most to stimulate* CONSUMER CONFIDENCE

Incorporated 1907

THE AYLING & REICHERT CO.
3047 NORTH ERIE STREET TOLEDO, OHIO

Look for the *Arm-and-Hammer*

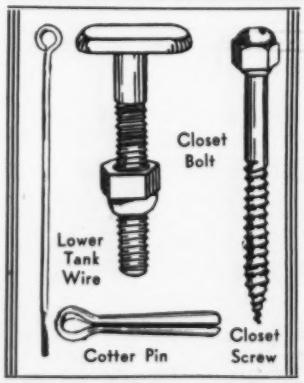
ARMSTRONG BROS.

Improved WRENCHES

ARMSTRONG BROS. (Patented) Pipe Wrench has 10 improved design features. It will stand any side strain for jaw passes between heavy forged lugs. No clumsy "frame", nut can't fall out, replaceable jaws of hardened tool steel. ARMSTRONG BROS. Chain Tongs come with either standard or reversible jaws which have greater bearing on the handle and forged-in guides to prevent chains from jamming.

Write for Catalog P-10

ARMSTRONG BROS. TOOL CO.
"The Tool Holder People"
323 N. Francisco Ave., CHICAGO, U. S. A.



BRASS Closet Bolts, Brass and Copper Refill Tubes, Brass Float Rods, Shower Curtain Hooks; in fact, an extremely large line of Plumbers' Specialties.

See Page 551 of Domestic Engineering Plumbing and Heating Catalog. These specialties will save time and money for you.

HINDLEY MFG. CO.
Valley Falls, R. I.

HINDLEY Specialties

ACHESON BRASS FITTINGS

The Best Brass Fittings that Experience, Modern Machinery, Rigid Inspections and Conscientious Effort Can Produce
Acheson Mfg. Co.
TRADE MARK
M
INSIDE EACH FITTING

New Contractors and Incorporations

Eugene, Ore.—Monty Lesley has opened a plumbing and heating business at 55 West Broadway.

Los Angeles, Calif.—The Westside Plumbing Service has engaged in business at 1152 North La Brea avenue, under the management of Edward Warnus.

Los Angeles, Calif.—Earle's Plumbing Co. has opened a plumbing and heating business at 5626 North Figueroa street, under the management of Harold D. York.

Brockton, Mass.—Charles F. Brennan has moved his plumbing business to the Fox block. Mr. Brennan is a member of the board of water commissioners in this city.

Buffalo, N. Y.—The Continental Heating Company has been organized by Jacob M. Schwartz of 348 Colvin avenue and associates, to conduct a heating contracting business.

Bridgeport, Conn.—N. A. Abriola, Inc., has been incorporated to conduct a plumbing and heating business. The incorporators are N. A. Abriola and L. H. Abriola, both of this city.

New Haven, Conn.—Banquer Plumbing & Heating Company has been incorporated with a capital of $50,000. The incorporators are: Herman Banquer, Harold Banquer and Frances Banquer.

Buffalo, N. Y.—The Empire Plumbing Supply Company has been organized by Laurence Hutt and associates, to establish and operate a plumbing engineering and contracting business at 349 Broadway.

Buffalo, N. Y.—The S. and H. Plumbing Company has been organized by Joseph Hallman, 163 Jewett Avenue, Edwin Seitz, 100 Marigold Avenue, and L. Johnson, 97 Fennimore Avenue, to establish and operate a plumbing engineering and contracting business.

Buffalo, N. Y.—The Spencer Air Conditioning Company has been organized and incorporated, with a capital of $10,000, to deal in air conditioning equipment. Principals of the new concern are Nelson C. Spencer, John L. Spencer and George A. Hoag, all of Orchard Park, N. Y.

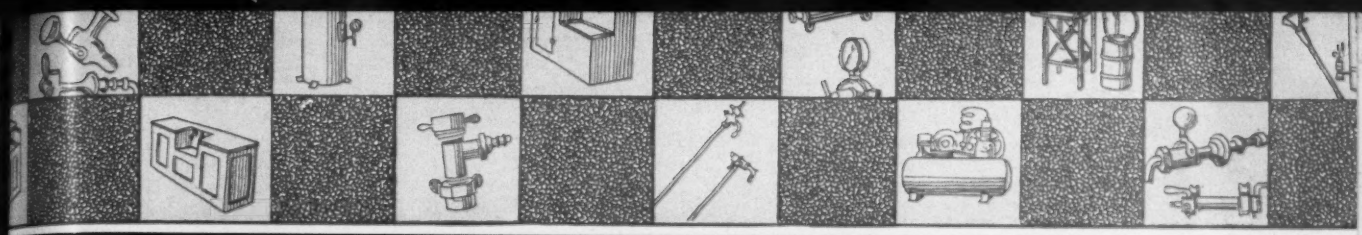
San Francisco, Calif.—Young & Co. have moved their plumbing and heating business from 539 Faxon street to 1619 Ulloa street.

Mexico, N. Y.—Ray E. Dailey has sold his interest in the plumbing and heating firm of Sherman & Dailey to Charles Patrick of Elizabeth, N. J., and has opened a plumbing and heating business on his own account on Railroad street in this city.

Something New Again

Mueller Co. presents an Art Craft Staple Line of plumbing goods in glistening, brilliant Chromium.
Nothing prettier, more substantial or serviceable.
Adds beauty to the finest bath room and satisfies the most exacting and fastidious taste.
The line is complete and we assure you well worth your investigating.

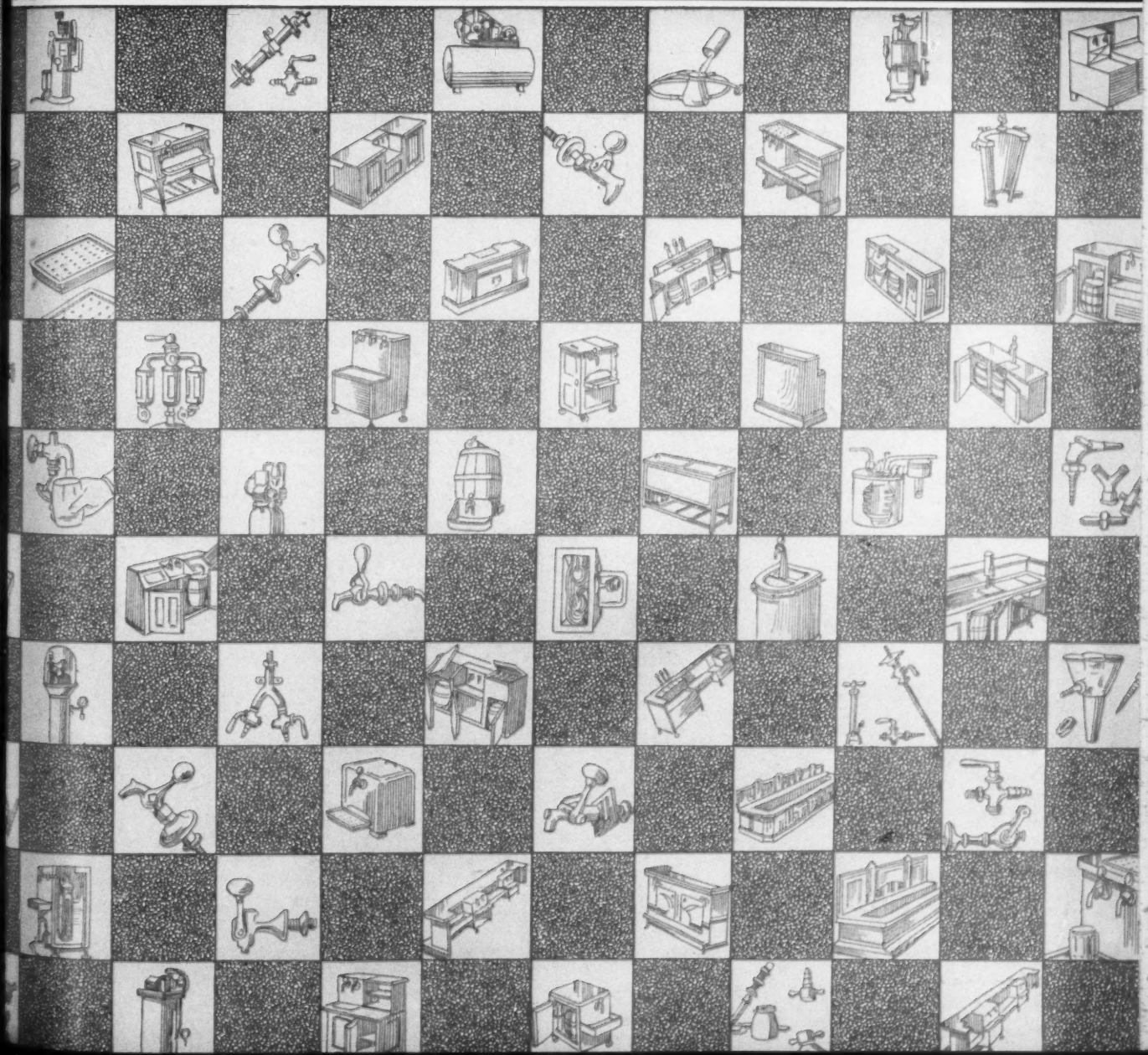
MUELLER CO.
Decatur, Illinois



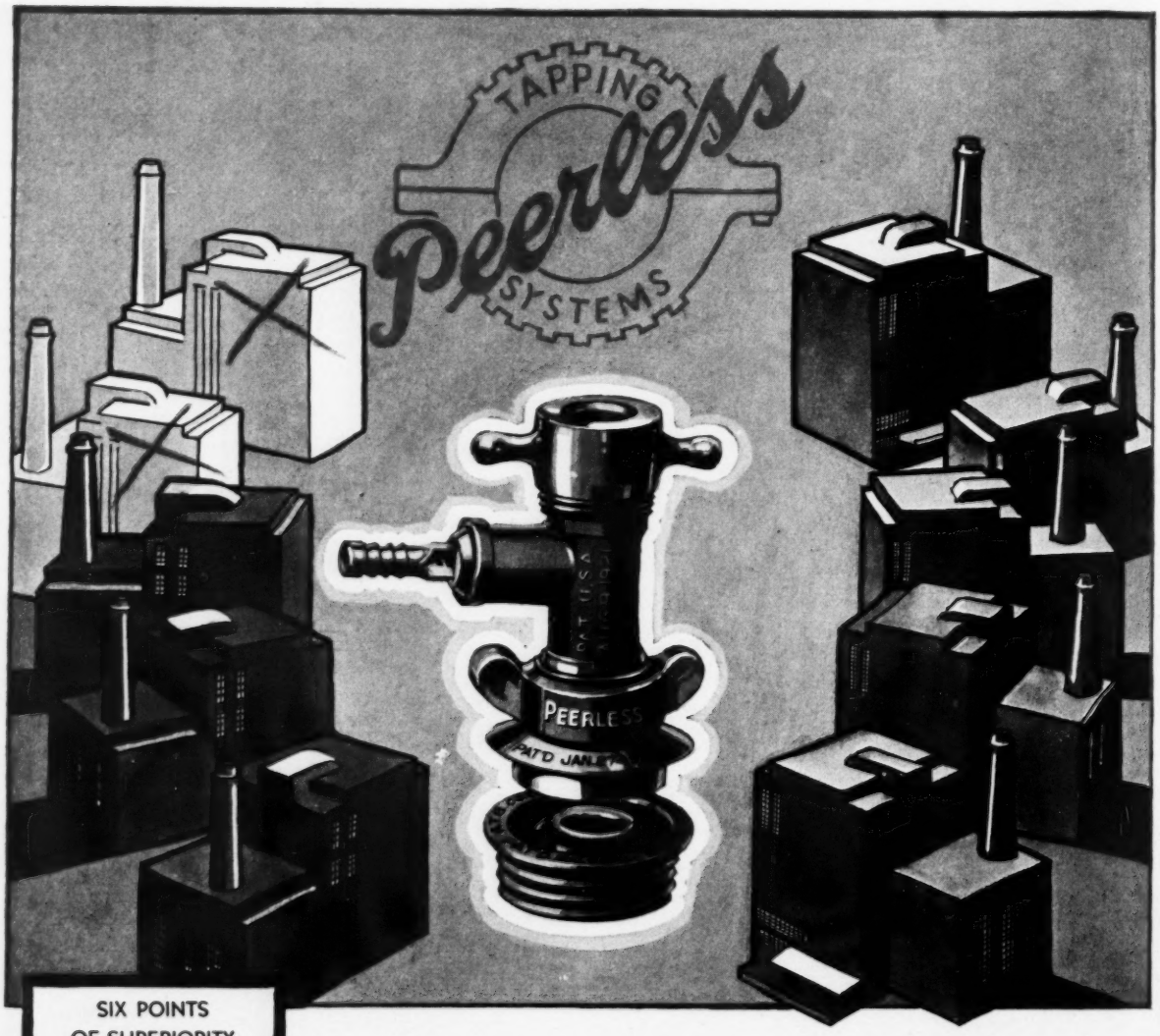
Beer Equipment Dealer

SECTION OF

DOMESTIC ENGINEERING



8 OUT OF 10 BREWERIES USE *Peerless* TAPS AND BUSHES



SIX POINTS OF SUPERIORITY

•

Durable
Sanitary
Simple
Self-Centering
Positive
Economical

It is vitally important that a brewery's customers find it easy to tap their barrels and once tapped the fittings must remain sanitary and workable . . . That is one reason why 80% of all breweries use the famous Peerless Tapping System . . . It's fool-proof, nothing to get out of order, nothing to wear out and it provides positive protection for the beer . . . Why take a chance? Write today for Peerless literature.

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THE AMERICAN TAP BUSH CO.

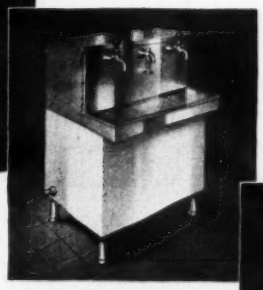
Manufacturers of Beer Handling Equipment for 38 years

DETROIT • MICHIGAN

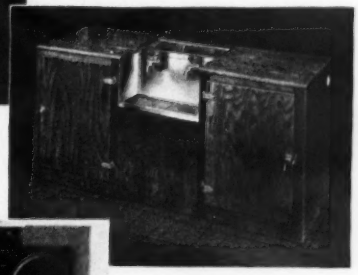
Quality in the STEIN

IS THE CLUE TO *The* PROFITABLE LINE!

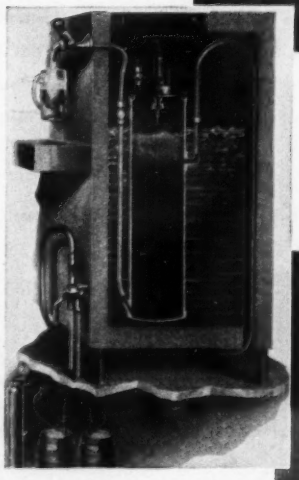
The "Cadillac" standard bar design. American Butt Walnut, Mahogany top, Verde Antique Marble basing



Red Diamond Beer Service Bar for Two Half-Barrels. Wood (as shown below) or Stainless Steel

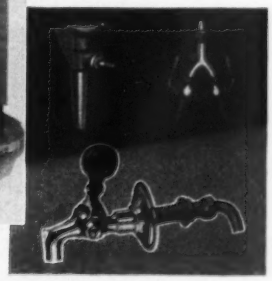


Red Diamond Beer Cooler for Two or Three Coils



LIQUID-ZAHM Controlled Pressure Beer Drawing System

Some of the complete line of brass goods and fittings



● Your safest guide in choosing the beer drawing equipment you will sell and install, is *final satisfaction.* This means pleasing the dispenser first — But, the final requirement is equipment that delivers true brewery quality to *his customers.* By this test you can select the quality line.

"Liquid" Beer Drawing Equipment—a complete line from full length bars to tapping bungs —is built to the standard of "quality in the stein." Those who distribute and install this equipment have earned valuable reputations and built profitable business relationships.

The Liquid-Zahm Controlled Pressure Beer Drawing System is typical of "Liquid's" leadership in serving beer at its best. The brewery quality of any brand is preserved in the customer's stein—Correct collar, uniform body, right temperature—plus the profitable economy of more steins per barrel.

NRA MEMBER U.S. WE DO OUR PART

Get the new "Liquid" Catalog illustrating and describing the full line

THE LIQUID CARBONIC CORPORATION

3100 S. KEDZIE AVENUE, CHICAGO, ILLINOIS ● Chicago Sales Room: 619-621 S. Wabash Avenue

Boston New York Philadelphia Buffalo Pittsburgh Cincinnati Cleveland Atlanta Jacksonville Nashville Memphis
New Orleans St. Louis Detroit Minneapolis Kansas City Dallas Denver Salt Lake City Seattle Los Angeles San Francisco

"GRAND"

BEER TAPS and VALVES STAND UP UNDER HARD USE

"Grand" Tapping Equipment is scientifically designed to give even more than your customers would ask in reliable, trouble-free performance. *And it is built to stand up under hard use.*

Thousands of "Grand" Taps and Valves—for both steel and wood barrels—in use wherever beer is sold, have proved their reliability and long life in actual service.

Made by expert workmen from the finest materials obtainable; accurately machined and rigidly inspected, *every piece of "Grand" equipment is fully guaranteed against any defect of material or workmanship.*

In addition to the taps and valves illustrated, the "Grand" line includes New York and Peerless type taps, bent cock and straight cock tapping rods and a complete line of beer dispensing equipment, connections and fittings.

There is money for you in handling the "Grand" line. Write us today for full information.

Brass Specialties

by

GRAND HAVEN BRASS FOUNDRY
GRAND HAVEN, MICH.

No. 2440—Golden Gate Type Tap, Threaded End for block tin coupling. Can be used with either wood or steel barrels.

No. 2442—Golden Gate Type Tap, Hose End. Can be used with either wood or steel barrels.

No. 2441—Golden Gate Type Tap, Air Inlet.

No. 2443—Golden Gate Type Valve for Wood Barrels.

No. 2444—Golden Gate Type Valve for Steel Barrels. (Not illustrated.)

Getting Ready for Repeal

With the prohibition amendment surrendering its constitutional position as each week adds to the number of states which vote for its repeal, dealers in beer dispensing equipment and manufacturers of such products are facing the certainty of changes in their business.

What those changes will be is naturally beyond the present ability of any one to assert positively. But the certainty of a change, justifies the alert dealer in preparing himself and his organization to take advantage of whatever develops when the last step in the long repeal campaign is taken.

For one thing, it seems logical to anticipate a smaller edition of the rush of business which came with the re-legalization of beer last spring. Liquor in some states will be dispensed through some agencies as soon as repeal is accomplished and the establishment of such agencies will certainly bring about the opening of new places and the rehabilitation of others.

Many of the states are now studying how to handle the return of liquor. A sensible approach to this troublesome question has been taken in a number of the states. Such governors have appointed special commissions, usually made up from the ranks of those whose standing and position guarantees an open-minded and sincere approach to this study. These commissions are holding hearings at which advocates of one form or another of liquor control are presenting the data upon which they base their convictions.

With the liquor control question returned to the individual states, it seems inevitable that a variety of control measures may be expected. Each dealer in his own commonwealth should keep himself properly informed of the trends in his state, should follow the activities of the special and legislative committees handling this problem and should be ready, as soon as legislation is enacted to turn his organization into the channel which such legislation indicates must be followed.

A major point of discussion just now is whether or not liquor should be sold over a bar. If the package system is adopted as a means of preventing hard liquor drinking on the premises, dealers and manufacturers will face an entirely different situation than if sales over a bar are allowed. In any case, the beer equipment dealers who have been rapidly establishing themselves in recent months should be and undoubtedly will be the distributing groups through which any increased business resulting from repeal of prohibition will be done.

Manufacturers of beer dispensing and brewing equipment have just held at Chicago their first exposition in 22 years. At left, top to bottom, are displays of Imperial Brass Mfg. Co., Liquid Carbonic Corporation and International Nickel Co.

Name Managing Director for Equipment Association

C. J. PALMER has accepted the position of managing director of the National Beverage Dispensing Equipment Association. This association is representative of the beverage dispensing equipment industry and includes manufacturers and distributors of both beer drawing equipment and soda fountains.

This association plans to put into effect a code of fair competition which will eliminate the many unsound practices to which the industry has been and is now subject in an effort to rehabilitate the industry and otherwise effectuate the policy of the national industrial recovery act.

This code has been prepared and will shortly be presented to all members of the industry for their consideration.

The new managing director spent some seventeen years with the Liquid Carbonic Corporation during the last ten of which he was vice-president and general sales manager. In 1931, he joined the Bastian-Blessing organization and on January 1st of this year went to Cleveland as vice-president and general manager of the Russ Soda Fountain Co. which position he has just resigned to accept the management of the National Beverage Dispensing Equipment Association. The headquarters of the Association will be in Cleveland although a Washington connection will also be maintained in order to keep in close touch with the Government.

Mr. Palmer, it is known, considers it his duty to give all possible assistance to an industry in which he has spent his entire business life. The national industry recovery act presents an opportunity to bring order out of chaos and it is to this job that he will devote his entire time.

Chicago Exposition Draws Nearly 250 Exhibitors

CHICAGO, during the week of Sept. 23, was the scene of the second American exposition of brewing machinery, materials and products. Held in the Coliseum, this exposition was composed of nearly two hundred and fifty exhibits which covered not only those in the brewing industry, but the manufacturers of beer dispensing equipment.

It was just twenty-two years ago, in October of 1911, that the first (and last, for the period of prohibition) exposition of this kind was held. Originally it was thought that the main hall of the Coliseum would be large enough to house the exhibits. It was necessary, however, in order to accommodate all who wished to be represented, to use also the north hall, and to utilize a part of the balcony space of the main hall. The south hall, usually used as a storage space, was turned into a

(Continued on page 151)

Beverage Dispensing Equipment Industry Submits Code

THE National Beverage Dispensing Equipment Association on August 28 submitted a general code for the beverage dispensing equipment industry to the National Recovery Administration. Rules of fair competition will be submitted later.

This code in its present form reflects the proposal of this industry, and its provisions have not yet received the approval of the National Recovery Administration as applying to this industry. The code follows:

National Industrial Recovery Code for National Beverage Dispensing Equipment Association

To effectuate the policy of Title I of the National Industrial Recovery Act, the following provisions are established as a National Industrial Recovery Code for the beverage dispensing equipment industry.

I

Definition.—The term "beverage dispensing equipment industry" shall be understood to include those who manufacture any type of equipment for dispensing beverage, or any parts thereof. The term "person" as used herein shall include natural persons, partnerships, associations, and corporations. The term "employer" as used herein shall include every person promoting, or actively engaged in, the manufacture for sale of the products of the beverage dispensing equipment industry as herein defined. The term "effective date" as used herein is defined to be the eleventh day after this code shall have been approved by the President of the United States.

II

As required by Section 7 (a) of Title I of the National Industrial Recovery Act, the following provisions are conditions of this Code:

"(1) That employees shall have the right to organize and bargain collectively through representatives of their own choosing, and shall be free from the interference, restraint, or coercion of employers of labor, or their agents, in the designation of such representatives or in self-organization or in other concerted activities for the purpose of collective bargaining or other mutual aid or protection; (2) that no employee and no one seeking employment shall be required as a condition of employment to join any company union or to refrain from joining, organizing, or assisting a labor organization of his own choosing; and (3) that employers shall comply with the maximum hours of labor, minimum rates of pay, and other conditions of employment, approved or prescribed by the President."

III

(a) Employers and employees shall be free to bargain individually or collectively as may be mutually satisfactory.

(b) Employees may be selected, retained, and ad-

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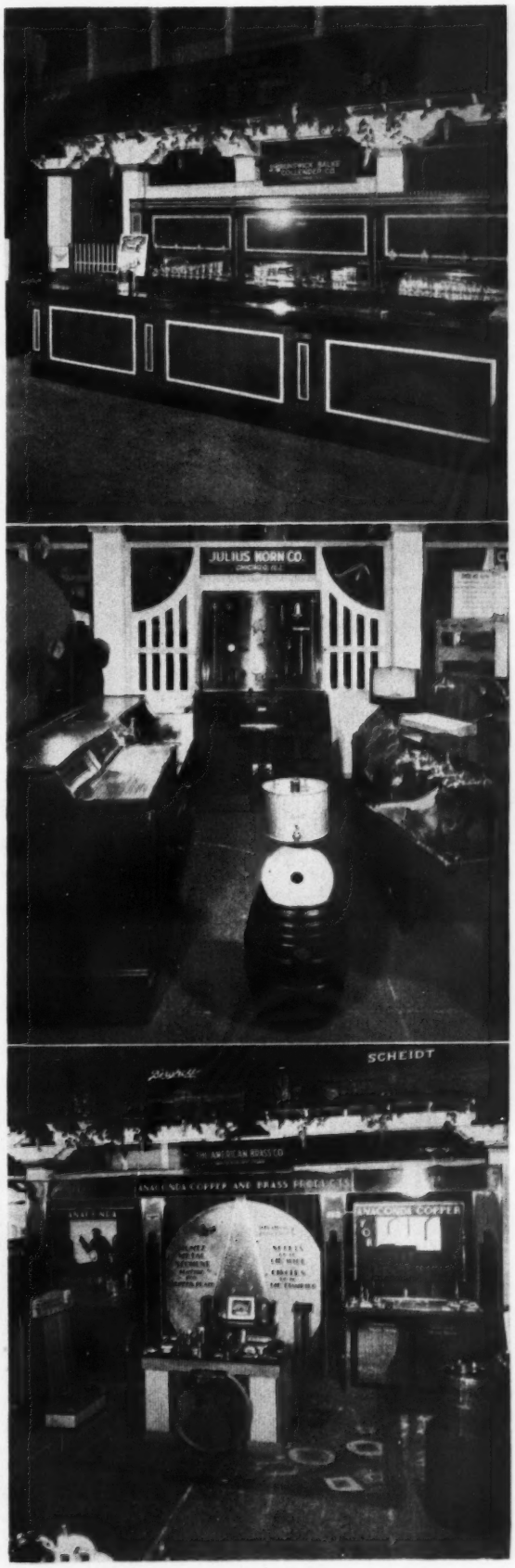


Dealers in beer dispensing equipment found much of interest at the Chicago exposition where nearly 250 displays were shown. Here at right, top to bottom, are exhibits of Brunswick Balke Collender Co., Julius Korn Co. and the American Brass Co.

"Best Equipment—at a Profit"

a policy that has made for this dealer a paying business in quality beer dispensing equipment

AMONG the readers of this publication, the firm of Pinski Brothers, Great Falls, Mont., is representative of the well-managed establishment, alert to the demands and opportunities of modern merchandising. Staple lines and specialties alike they take in their stride, backed by an organization working under conditions that make for loyal and contented workers.

The legalization of beer created an opportunity made to order for readers of this type. Added to a merchandising viewpoint developed through years of experience was the extra punch such dealers learned how to put into their selling efforts during the trying period of the last three years. Trained to a ready acceptance of the fact that sales could be made in spite of difficult times, such organizations were builders of good will for quality beer dispensing equipment because they knew themselves equal to the job of selling profitable lines. They had done it during hard times—given an opportunity like that created by the legalization of beer, with widespread demand, they saw no reason for sidestepping the selling job involved in putting over quality merchandise.

A. A. Pinski, head of the firm and its driving force, gives the following interesting account of the way they

prepared for the coming of beer and how they are cashing in on the demand for everything in the line of beer dispensing equipment, from tap rods to bars:

"Before and after the beer came in we gave this matter considerable consideration, realizing that the usual conglomeration of inefficiency and unprofitable dealings would quickly develop in this commodity that at present exists in all merchandising.

"We trained ourselves to become familiar with all branches of the beer industry. This information creates confidence in our organization, breaks down sales resistance and paves the way for the sale of high class equipment, where price is not the first consideration, and competition is not a nightmare."

THEY WERE READY

"With this picture before us we laid our plans carefully to install only the best possible equipment, at a profit that would hold our interest and be an incentive for us to go after this business with a whole-hearted effort. To get out of the field of cut-throat competition we chose what we believe is the best grade of beer cabinets, novelty boxes, storage boxes and accessories on the market. Small services lead to large sales, so we put in a complete line of tap washers, couplings, hose, beer pipe cleaners, regulators, block tin, taps, draft tubes, picnic pumps, not forgetting ground key grease for beer faucets and pipe cleaning compound.

"We advertised this complete service repeatedly in our daily papers, showed the local brewery how we would cooperate with them and received their cooperation. They were pleased to stay out of the service end. Our salesman got busy looking up prospects and with the advent of beer on April 7th we felt that we were well on the road to being the beer equipment headquarters of our city and tributary towns.

"To back our advertising and merchandise we trained ourselves and our men to become familiar with all branches of the beer industry—the processes of manufacture, storage, dispensing, proper temperature, proper pressure under varying conditions; how to tap and draw beer; how to clean equipment; also the cost of beer in various containers, how many glasses in a container, how much waste and how much profit could be made.

BEER KNOWLEDGE HELPS SALES

"Being well versed in this product, like any other, is a valuable sales asset. For instance, one of our men coming in contact with a dispenser informs the dispenser (we find that practically all of them have a lot of miscellaneous ideas and information that leaves them more or less bewildered) that a half barrel of beer will cost him $8.00, that he can expect one hundred and seventy 12-oz. glasses of beer out of this container at 10c per glass, giving him a gross profit of $9.00; informs him how to keep and dispense his beer, etc. This information creates confidence in our organization, breaks down sales resistance and paves the way for the sale of high class equipment, where price is not the first consideration and competition is not a nightmare.

"Under the present industrial conditions it was to be expected that there would be a multitude of various

(Continued on page 149)

A view of the cooler set-up installed by Pinski, who started out to build a quality business, and has succeeded

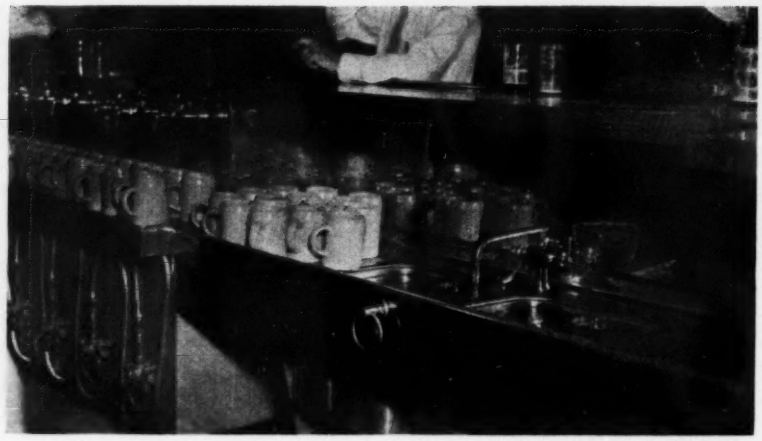


Fig. 1—The washing and rinsing sink for the bar in the photo below, is shown here. Note the sight glasses on the beer lines at the left

25 Brands at One Bar

Special Provisions Recommended for Care of Beer

WHEN the second American Exposition of Brewing Machinery was held at the Coliseum in Chicago, just a few days ago, the bar which is shown at the bottom of this page was installed in connection with a beer garden, for the purpose of enabling the different brewers to place their beer on tap. Twenty-five different makes of beer were stored in the refrigerator room below, see Fig. 3, and were separately connected.

T. F. McCaffrey, a plumbing contractor and beer equipment dealer of Chicago, not only made the entire installation for this group of brewers but one of his men was stationed in constant service at the job to supervise the tapping and drawing of the beer. Two brands of beer were in service at one time. While one was being drawn, a full keg was resting. The switch-over then became merely a matter of changing the valves. Here was an installation where those who sponsored it fully appreciated the importance of correct equipment and handling methods in the drawing of beer.

Along this line, it is interesting to note what one of the breweries has to say. The following is taken from a booklet just released by Premier-Pabst Corp. of Milwaukee:

No matter how excellent its quality may be, beer is a

Fig. 2—This is a view of the bar installed for the American Exposition of Brewing Machinery, in the Coliseum in Chicago. Twenty-five brands of beer were served

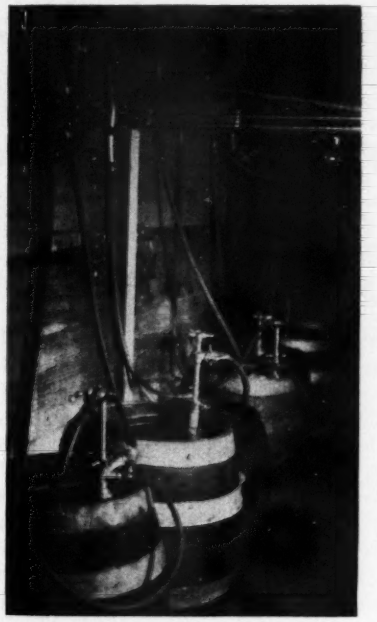


Fig. 3—Just one small section of the refrigerator room under the bar in Fig. 2 is shown here

perishable article which requires very careful treatment even under favorable conditions. A thorough knowledge of its proper handling during the various phases it undergoes from the time it leaves the brewery until it is served to the consumer is therefore indispensable for those who handle it. The following instructions on this subject are the result of many years of experience, and if carefully complied with, will amply repay for the trouble of careful study.

TEMPERATURES TO MAINTAIN BEER

To protect beer from becoming too warm, or from freezing in cold weather, the following rules should be observed:

When loading or unloading, the beer should not be exposed to extremely high or low temperatures longer than necessary. Immediately after arrival it should be removed to a cold storage room. To protect it during transit it should be completely covered with a canvas or tarpaulin or hauled in a truck with an insulated body. This precaution should never be neglected, even in moderately warm weather. If keg beer is shipped by rail to some other town, it should be shipped in refrigerated cars. Long hauls made by truck require the protection of insulated trucks and only for very short hauls should ordinary trucks be used. The permissible haul by ordinary truck is longer in cool weather than in warm or freezing weather. Beer, whether in kegs or bottles, must under no circumstances be allowed to lie about for any length of time, exposed to either high or freezing temperatures.

In winter the beer may arrive at destination in a very cold condition, in some instances partly frozen. If that is the case, the packages should not be placed near a radiator, nor in a very warm room, as too rapid and excessive heating will render the beer unpalatable.

Place it in a moderately warm room having a temperature of 50 to 60 degrees, and let it warm slowly. A separation of alcohol and water takes place in freezing. By turning the kegs over occasionally the alcohol and water will mix properly and the clarification of the beer will be hastened. Usually not more than 24 hours is required to restore the beer to its original brilliancy. It should then be removed to the cold storage room, which is to be kept at from 40 to 45 degrees during winter.

It is of utmost importance to store beer at the proper temperature in a refrigerated room. In summer it should be kept at an even temperature of from 36 to 40 degrees Fahr., in winter somewhat higher, namely, 40 to 45 degrees.

If beer gets warm the carbonic gas constituting the life of the beer is freed and the pressure on the kegs increased to such an extent that wooden kegs are liable to spring a leak, sufficient to allow the gas or even the beer to escape. When such a keg is tapped, even when it has again been cooled to the proper temperature, the beer is flat even though the keg may not show any outward sign of being leaky. Also, when beer gets warm in a wooden keg it is apt to take on an objectionable flavor derived from the pitch which is used in lining the barrel. Keg beer, if allowed to stay warm any length of time will lose its stability; that is, it will become turbid and unpalatable much sooner than otherwise would be the case.

Draught beer as well as bottled beer should be disposed of in the order received. Beer at best will keep but a limited time, and therefore must not be allowed to become too old. Beer should be stored in such a manner that the oldest beer can be taken out first.

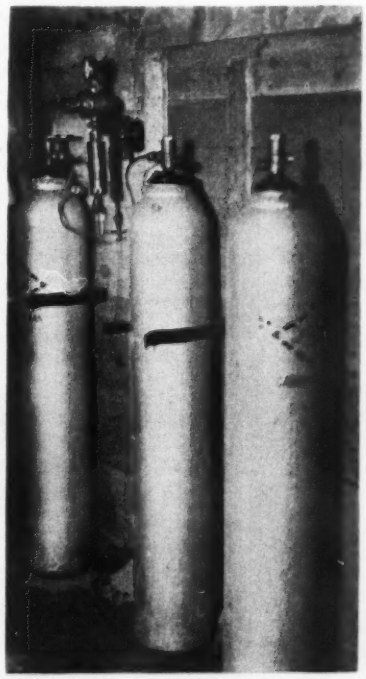


Fig. 4—An electric heater was used in the CO_2 gas line employed in drawing the beer. This equipment is shown above

Better Products Mean Better Beer

—as Well as Better Jobs for Dealers

A GENERAL arrangement for a refrigerator and its beer pipe is represented in the illustration below. It is one of the simpler plans. The drawing is self-explanatory. The refrigerator is located in the basement directly under the bar. A small opening connects the small refrigerator under the bar with that in the basement and is made just large enough for the pipes to go through. A sheet metal protection around the pipes prevents a direct contact with the ice, if ice is used, and a water drip is arranged to catch the water flowing from the ice-box under the bar. In this way a direct air communication is established between the upper and lower ice-box, which keeps the beer at uniform temperature from barrel to faucet. With mechanical refrigeration the principle is the same.

It is not always possible to have a storage cellar below the bar and in many instances beer is stored on the same floor. The same principles as described above apply in this instance as far as temperature is concerned.

When an air pump is used, the air should be fresh, free from dust and bad odor. Foul air imparts a bad taste to beer. To free the air from dust and organisms, the suction pipe often is provided with a suitable filter.

After much handling, or after it gets old, rubber beer hose used in making connections loses its stiffness and is very apt to kink, especially near connections. This creates friction and causes separation of the beer and gas. Buckling or kinking may also rupture the inner surface of the hose which intensifies the trouble. Therefore, it is desirable, in order to prevent this, to use spring steel coils which can be bought for the purpose of covering the hose. *This is important.*

Before tapping a package one should be sure that the beer has attained the right temperature; namely, 40 to 45 degrees in summer and about 43 to 47 degrees in winter. This can best be accomplished by having the refrigerator at the right temperature and allowing the keg to stand in the refrigerator some time before tapping. Even if the package is cold enough when received from the jobber, nevertheless it should be allowed to stand in the refrigerator for a few hours before tapping, to allow the beer to reabsorb the carbonic gas which has been liberated during handling. It is well to let beer rest another hour after tapping, to let the gas which has been liberated by the jar of tapping become reabsorbed.

If beer has a chance to enter the gas or air pipe and

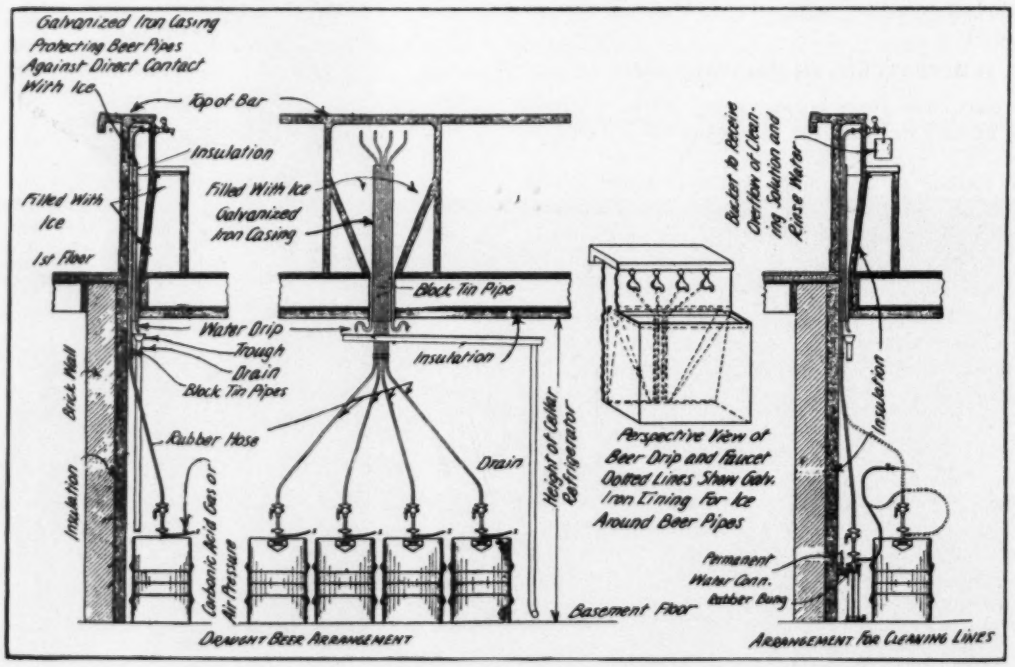


Fig. 1—This drawing shows a simple arrangement for a refrigerator box and piping

pressure cylinder, it will quickly develop an objectionable odor which will be transmitted to the beer. The check-valve is therefore a necessity. It must be regularly inspected and cleaned whenever a fresh package is tapped. Replace it with a new one if found defective.

Empty kegs should be immediately removed to assure absolute cleanliness and likewise to prevent odors.

To draw beer open tap all the way, fill glass nearly full, let rest a moment, and finish filling by opening tap full again. Level off glass with scraper.

Never draw beer before it has attained the right temperature in the package and has been allowed to rest for at least one hour. If the beer is warm in the keg and cooling is effected only in the pipe leading to the faucet, it draws wild, will not keep the foam and runs flat within a very short time after it is tapped. It is, therefore, wrong to keep and tap the kegs in a warm place, but it is absolutely necessary to provide a well insulated refrigerator of proper size as explained above.

While this outline covers good installation practices, it includes general information which may be passed on by the beer equipment dealer to the bar owner. The information is furnished through the courtesy of Premier-Pabst Corp.

PRESSURE FOR DRAWING BEER

Cooling coils are often used in the belief that it is possible to draw the beer in perfect condition even from a warm keg. However, if the beer in the keg is not cold it will lose carbonic gas, which will collect in the beer line near the faucet and escape when the faucet is opened. This loss of gas will render the beer partially flat, and when it is drawn through the intensely cold ice-covered coils it becomes still flatter.

The pressure should be turned on before drawing any beer (*do not* wait until the keg is partly empty) and should always be sufficient to force the beer to run freely, but should not be so high that the beer rushes into the glass too fast, creating excessive foam and thereby waste. This is a matter of judgment and must be regulated according to existing conditions. Where barrels are on the same floor as the bar, a lower pressure (four to five pounds ordinarily, with somewhat more if a long coil is used) must be used to avoid excessive foaming.

Before closing for the night it is good policy to increase the pressure of carbonic gas to about ten pounds. To prevent wild beer and waste, excessive pressure must be released the next morning before the faucet is again opened. It is considered important practice to draw off sufficient quantity of beer each morning to "clear the pipes" and give the first customer a glass from the keg itself.

IMPORTANCE OF CLEAN EQUIPMENT

No matter which pressure system is employed, it is most important to keep the *air or gas pressure line hose, pipe and everything connected therewith scrupulously clean.*

The thorough and frequent cleansing of the beer pipes, tapping apparatus and faucets is of utmost importance. The least carelessness may cause the beer to draw unsatisfactorily no matter how fine its original quality may be.

The cleaning of the beer pipes, etc., can be effected in several ways.

GREASE ON GLASSES

Professional pipe cleaners often only steam the pipes and rinse them with water. While this may be sufficient for air and gas pressure lines, it is not for beer pipes. Steam destroys the organisms, but does not properly remove them, and for this reason further treatment is indispensable.

When coils and pipes are not in use they should be kept filled with water to prevent drying.

The cleaning of beer and gas (or air) lines should be carried out regularly at least once a week.

It is most important, in order to serve beer with a firm head to have the glasses scrupulously clean. Simply washing them in hot or cold water will not suffice. It is necessary to rinse them after service in a clean sal soda solution. Warm water is much better than cold water for this purpose.

Grease in the glasses causes the prompt collapse of the foam and makes the beer look flat. Therefore, in restaurants where butter or greasy foods are served this condition is apt to prevail. It is practically impossible to keep glasses in which milk, malted milk, or ice cream have been served, free from grease. Therefore, a separate set of beer glasses should be used for beer only and should be washed in a separate utensil, so that they will not get greasy in washing.

It is also true that if butter or other fat is on the lips when drinking beer the foam will be lost from the beer when the glass touches the lips, due to the transfer of fat from the lips to the glass.

The glasses in which beer is to be served should be wet. Whenever you find small bubbles adhering to the inside of the glass before the foam line, you can be sure that these bubbles have formed because the glass was dry or greasy. If the foam forms into big bubbles and quickly drops you have definite indication that the glass is greasy and it needs a sal soda bath.

Always rinse the glasses thoroughly in running fresh water after the sal soda bath, which can be prepared by dissolving 6½ ounces of sal soda in one gallon of water.

If the towels which are used in drying glassware have been used for drying greasy plates, a greasy film will be imparted to the glass; therefore special towels, which have been carefully washed and which have not been used for other purposes, should be used, or still better, do not dry the inside of the glasses at all. Let them dry and wet them again before filling with beer.

Bottled beer which is pasteurized need not be stored in cold storage. However, it should be stored in a cool place and not on the top floor under the roof with the hot sun raising the temperature to an undesirable degree, nor in too cold a temperature. Frozen or chilled bottle beer must be treated similarly to keg beer, but can stand a higher temperature.

Good Beer Demands

Here are two quality jobs. Problems described from a Minneapolis bar

Fig. 1—Here is a line of booths lined up against the wall opposite the bar

MORE recent installations of beer dispensing equipment are emphasizing quality products and workmanship as essential to the serving of good beer. In addition, the other mechanical services of the beer store are receiving more attention because customers are demanding the best facilities.

A recent installation in Minneapolis illustrates these two trends. In this store all beer is drawn at the back bar and none at the front bar.

The beer is stored in a basement cooler, using natural ice, and is conducted through ⅜-in. block tin pipes up to the back bar or cooler.

In this cooler, the beer passes through a 35-ft. coil of ⅜-in. block tin (one coil for each beer faucet) which is packed in and covered with ice.

All joints in the block tin piping are made by flaring the end of the pipe and using this flared end in conjunction with a union nut to complete a union connection.

The coils were made by bending the block tin pipe around a circular form so as to secure the proper diameter coil to fit into the end of the novelty box.

The distance from the keg to the faucet is about 15 ft., and there is no insulation as there is only a few feet of pipe between the basement box and the novelty box.

Pressure is created by means of an electric pump, which is automatic in action. Connections from air compressor tank to the kegs is by means of ⅜-in. red rubber hose.

The sale of beer has resulted in the installation of a great deal of plumbing equipment in buildings already erected where it is just about impossible to follow the printed rules for the installation of the piping.

This is apparent in the sketch marked Fig. 5 showing the piping for the tavern in question in Minneapolis, Minn.

As will be noted from the plans, the original plumbing in the building was all at the rear end, the sewer leaving the building at the side and close to the rear of the building.

At this point there was a closet and basin in the basement, both fixtures connected to a 4-in. soil stack extending up thru the roof and with a 2-in. vent stack for the closet with a branch 1¼-in. vent for the lavatory.

The closet and basin were removed, but the 4-in. stack

Fig. 2—The pictures on these two facing pages do not show the installation described in this article, but were selected to illustrate some of the features mentioned and to represent the quality type of job. The bar is shown at the right

Good Installations

are illustrated by a similar installation made in a Chicago beer store

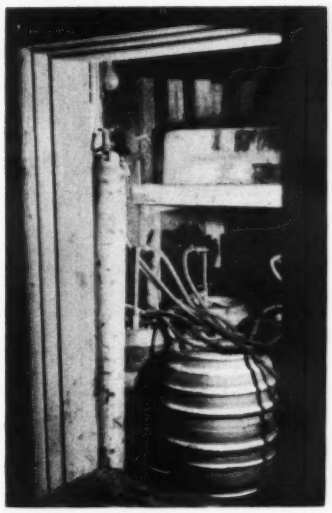


Fig. 4—Quality did not stop at the first floor level. Evidence of this is in the storage and piping in the basement as shown above

and the 2-in. vent pipe were left in place. From the old basin waste connection (a 2-in. soil pipe fitting coming up thru the basement floor) a line of 1½-in. waste pipe was strung along the side wall, with a gradual rise, almost to the front of the building.

At this point the old lavatory was installed and connected in the conventional manner (except that both waste and vent for the lavatory is 1½-in. instead of the usual 1¼-in.). The wastes from the ice rack in the basement ice cooler, the novelty box for beer and the cooler for bottles all drain into this lavatory and this lavatory is fitted with a cold water faucet.

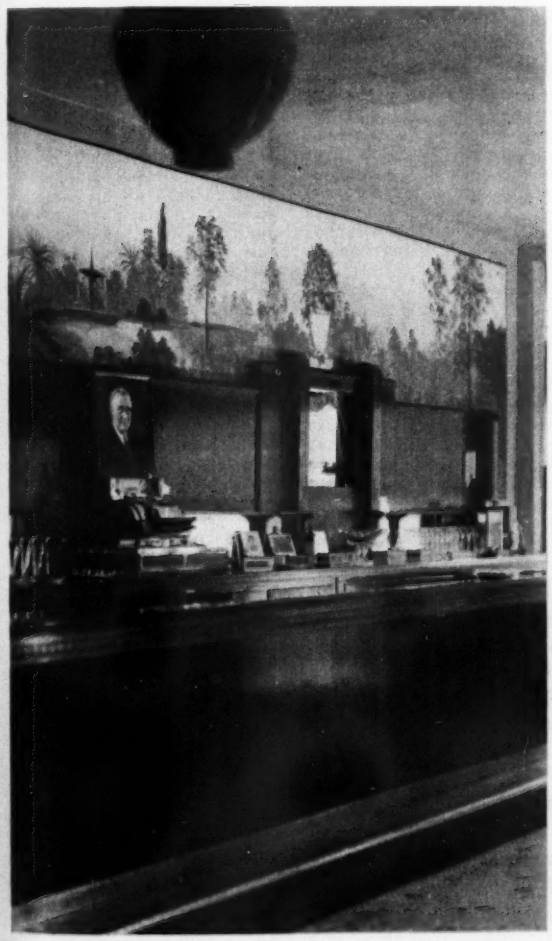


Fig. 3—The second half of the bar forming the main part of this quality installation is shown in the illustration at the left

A branch from this 1½-in. line leads up to the double sink under the front bar—this bar sink is drained thru a 4-in. by 8-in. drum trap—with a vent line extending up to the under side of the bar and then dropping down below the ceiling, where it joins with the vent from the lavatory and continues on to the rear of the store where it connects to the original 2-in. vent. This is a distance of almost 60 ft., but the vent stack could not be run up thru the roof in the usual manner and this installation was, therefore, necessary in order to provide air to the traps and thus prevent the danger of syphonage and the ever present noise resulting from long lines of unvented waste pipes.

As will be noted this 1½-in. vent line connects into the 2-in. vent line which extends up into the first floor and also drops down to the basement floor where it connects to the sewer line, thus creating loops at both ends which will effectively carry away any rust, scale or condensation which may occur in the vent lines.

Clean out plugs have been installed at frequent intervals in the long waste line and tees with plugged ends have been installed instead of ells at the various turns in the line.

The installation of new fixtures in the first floor made it necessary to extend the soil line the full 4 inches in size up to the two closets, but it was reduced to 2-in. at this point to avoid the necessity for furring out the partition as would have been necessary had the 4-in. pipe been extended up thru full size. Of course it was necessary to increase the stack to 4 in. just below the roof and carry it thru the roof 4 in. in size so as to prevent any danger of the roof cap freezing over in

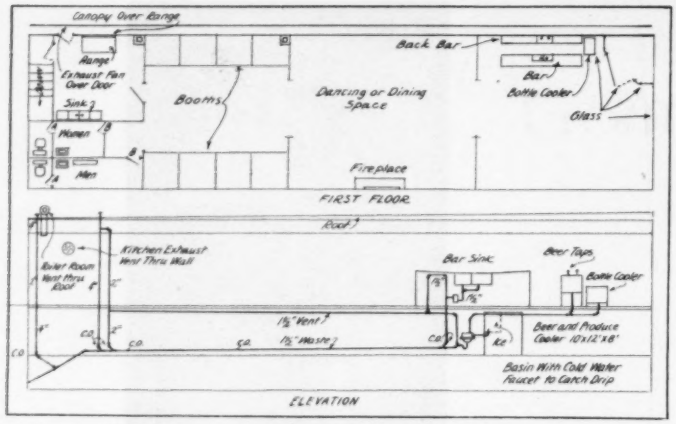


Fig. 5—This shows a plan view and elevation of the Minneapolis bar installation described in this article

the winter as would be the case with a 2-in. roof cap and with this number of fixtures below it.

The waste and vent lines have long turn drainage fittings for the horizontal lines and short turn drainage fittings for the vertical.

Owing to the fact that the two toilet rooms are without outside windows, local ventilation consisting of a 4-in. by 10-in. galvanized iron duct was installed for each of the two rooms. These ducts start at the ceiling right over the toilet and extend up thru the small attic space and out thru the roof. They are joined together in the attic space and go up thru the roof in an 8-in. round pipe which terminates well above the coping on the side walls in a rotary ventilator which creates a suction at all times. The openings in the toilet room ceilings are covered with iron grills.

Doors 'B' are fitted with grills instead of wood in the lower panels and doors 'A' have strips cut off the bottom, the purpose being to create a circulation of air from the dining room floor thru the rest rooms and toilet rooms and thence up and out thru the roof.

Toilet room floors are terrazo and the walls are coated with a hard plaster finished to resemble tile squares.

There is a canopy over the kitchen range to remove cooking odors from the room and also an electric exhaust fan mounted in the side wall just above the side door leading to the kitchen.

An automatic combination gas water heater and tank (20 gallons capacity) provides the necessary supply of hot water.

The building is heated with hot water and will be equipped with an oil burner at the beginning of the heating season.

The cooler in the basement is 10 ft. by 12 ft. by 8 ft. and will be used for the storage of beer and the food products used in the restaurant. Ice will be the cooling medium.

The booths on one side of the room will seat 4 people in each while those on the other side are extra large and will seat from six to eight people.

It is apparent that while the architect is trying to arrange fixtures and partitions so as to utilize the greatest amount of floor space and the decorators are trying to beautify the interior so as to make the dining rooms more attractive than ever before the plumber and the sanitary engineer is confronted with the problem of so arranging his piping as to provide for ample supplies of both hot and cold water and the removal of wastes, including foul air, in a quick and noiseless manner.

The Vote on Repeal

In the thirty-one states which have voted on the "wet and dry" issue, all of these states voting for repeal, 66 per cent or practically two-thirds of the population of the United States were represented. Five more states voting for repeal will void the eighteenth amendment.

The popular vote on repeal in twenty-eight of the thirty-one states was 10,983,812 for repeal and 3,550,600 against it. The vote in Nevada is not announced, but all the delegates elected are for repeal. The total popular vote in Idaho and New Mexico is not yet obtainable. The figures so far follow:

State—	Population	Date of Election	Result of Vote For	Against
Michigan	4,983,000	April 3	850,546	287,931
Wisconsin	2,976,000	April 4	648,031	141,518
Rhode Island	989,000	May 1	150,244	20,874
Wyoming	229,000	May 15	17,000	2,900
New Jersey	4,148,000	May 16	573,532	90,743
New York	12,852,000	May 23	1,946,532	247,450
Delaware	240,000	May 27	45,615	13,505
Nevada	93,000	May 27	.....	.....
Illinois	7,630,654	June 5	1,227,668	341,773
Indiana	3,238,503	June 6	557,062	312,120
Massachusetts	4,249,614	June 13	436,356	97,702
Connecticut	1,606,903	June 20	236,742	34,816
New Hampshire	465,293	June 20	76,044	30,409
Iowa	2,470,939	June 20	376,661	249,534
West Virginia	1,729,205	June 27	218,638	136,552
California	5,677,251	June 27	1,019,818	319,981
Alabama	2,646,248	July 18	100,269	71,631
Arkansas	1,859,482	July 18	67,622	46,091
Tennessee	2,616,556	July 20	126,983	119,870
Oregon	953,786	July 21	136,713	72,854
Arizona	435,573	Aug. 8	37,643	11,323
Missouri	3,629,367	Aug. 19	503,642	156,961
Texas	5,824,715	Aug. 26	279,567	165,082
Washington	1,563,396	Aug. 29	364,616	150,920
Vermont	359,611	Sept. 5	41,220	20,631
Maine	797,423	Sept. 11	115,067	51,892
Colorado	1,035,791	Sept. 12	130,900	61,336
Maryland	1,631,526	Sept. 12	202,698	43,136
Minnesota	2,563,953	Sept. 12	348,457	180,796
Idaho	445,032	Sept. 19	.....	.....
New Mexico	423,317	Sept. 19	.....	.....
Totals	80,071,034		10,983,812	3,550,600

Other states to vote on the repeal amendment this year are: October 3, Virginia; October 10, Florida; November 7, North Carolina, Ohio, Pennsylvania, Utah, South Carolina, Kentucky. Altogether thirty-nine states will have voted by November 7. Thirty-six are sufficient to make void the eighteenth amendment.

Bastian-Blessing Co. Expanding

The Bastian-Blessing Company of Chicago, Ill., has acquired the beer dispensing apparatus business of the Air Specialties Mfg. Co. of Chicago, including patents and good will, and the transfer has already taken place.

What Readers Ask

Here is a department devoted to a discussion of questions which are selected as of outstanding interest to beer dispensing equipment dealers

To the Editor:

Since many of the States require that beer be dispensed in connection with eating places, I should like to know if plumbing regulations governing restaurants also apply to beer stores? K. P. J.

Chicago, Illinois.

To the Reader:

What you say in regard to many of the States requiring that beer be dispensed in restaurants and other eating places, is quite true. As for your inquiry on the application of plumbing regulations, this is answered by a letter from one of our readers who is plumbing inspector for a middle western city of about 100,000 population. His comments are as follows:

"In our city we have at present in the neighborhood of 175 beverage parlors that are dispensing beer by draft, some of which are old established restaurants and hotels, but a large majority are new established places, which according to law must have food for consumption on the premises. This requires that these beverage parlors must have a restaurant license together with a beverage license.

"Our city plumbing ordinance has been attacked by outside beverage equipment salesmen for our strict plumbing requirements in connection with draw boxes, novelty boxes, and similar wastes. Some salesmen think that the beer slop and ice pack drain should all drain in open fixtures, while we feel differently about it. We require that the drain from beer slop be separately wasted from that of ice box drains, and that this beer slop waste be properly trapped and vented and connected to the sanitary sewer. As you know that after beer has been exposed to the air it soon gets stale and gives off a sour odor which we feel must be taken care of in a sanitary manner. Mixing beer slop and ice water makes a very insanitary condition.

"I am pleased to quote the following Sections of our city plumbing ordinance on this matter:

Section 64 (b): Grease traps of adequate capacity must be installed wherever kitchen or other greasy waste from hotels, restaurants, club houses, public and quasi public institutions or similar places is discharged into the sewer.

Section 72 (a): Bar, soda fountains and similar waste, when of one or not more than two compartments, may waste into a single drum trap. The trap, waste and vent pipe may be located at either end of bar or at any convenient point at side of bar. In no case shall trap be located more than six feet (6') from waste opening in fixture.

Section 74. The waste pipe from all refrigerators, ice boxes, or ice packs or any receptacle in which provisions are stored shall not connect directly with any drain, soil or waste pipe, but shall discharge into an open water supplied fixture properly trapped and vented, and shall be so trapped as to prevent the circulation of air."

To the Editor:

Kindly send me information regarding the cleaning of aluminum beer coils. I want to know what the requirements are for a good aluminum cleaning compound. W. P. R.

Pittsburgh, Pa.

To the Reader:

Your inquiry was referred to the Aluminum Company of America and the following reply by J. R. Akers of Aluminum Research Laboratories was prepared for your information:

"Daily cleaning of dispensing coils and fittings is necessary in order to prevent beer from having a stale, bitter taste. Frequent cleaning of this apparatus keeps the coils free from coagulated organic matter, which, if allowed to accumulate, have a definite, harmful effect on the flavor of beer.

"Because aluminum has been employed in breweries for many years, the cleaning of aluminum beer coils and other similar apparatus requires no special new technique. Alert manufacturers have contributed to the development of cleaners which are highly satisfactory for use on beer coils and other brewing equipment made from any metal, including aluminum. These cleaners can be employed either where the coils are cleaned by gravity flow of the cleaning solution or where pressure and special pipe cleaning equipment are used.

"According to tests which we have conducted, for satisfactory results it is necessary that the cleaners used on aluminum beer coils be:

1. Safe for aluminum.
2. Readily soluble in cold or luke-warm water.
3. Effective for removing beer residue.
4. Non-foaming.
5. Free rinsing.

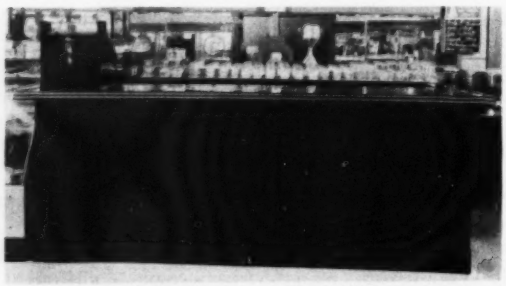
"We have made a special investigation to determine cleaners suitable for aluminum coils and have prepared a list of cleaners which have been tested and recommended as meeting the requirements necessary for a good aluminum cleaner for use in breweries. The list is not all-inclusive, as there are undoubtedly many cleaners on the market which are equally satisfactory for use on aluminum beer equipment whose names are not available for listing at this time. This list may be obtained by writing direct to Domestic Engineering."

Products
for the
Beer Dispensing Equipment Dealer

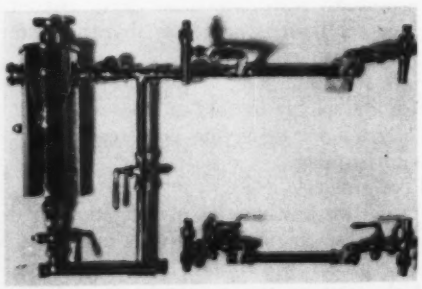
Readers will find in this section information and news regarding products for use in beer dispensing sales and installations

Line of Beer Equipment

The bar shown in the accompanying picture represents a line of equipment which is manufactured for the dispensing of beer. For instance, one part of this line consists of a service counter and enclosure. It is made in three standard lengths, namely, 7 ft. 8 in., 5 ft. 4 in. and 3 ft. Longer lengths in units of 2 ft., 4 in. can be had on special orders. The over-all width is 2



ft. 8 in. and the height is 3 ft. 9 in. The manufacturer is the C. Schmidt Company, John and Livingston Streets, Cincinnati, Ohio.



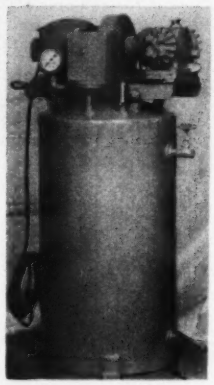
Apparatus for Cleaning Pipes

Here is a new piece of apparatus for cleaning beer pipes. It has been made to be entirely automatic and simple in operation. It has been designed for a permanent installation powered by city water pressure. Also this equipment is made so as to clean either one pipe at a time or all pipes at the same time. In the latter case, each pipe is cleaned individually. It is stated that the pipes can be cleaned in 4 minutes and that single pipes can be cleaned as soon as the barrel is empty. In addition, the rod which goes into the barrel is cleaned automatically together with the pipes. Another feature of this system is that it has been made to force beer out of a pipe line and coil so that the beer will not be left in the coil over night. Self Service Apparatus Corporation, 60 Wall Tower, New York, N. Y., is the manufacturer.

Unit for Dispensing Beer

The accompanying illustration shows a cut-away view of a unit for dispensing beer. With this system beer is piped under pressure into the metal tanks which are shown in the cabinet. These hold approximately forty 8-oz. glasses, the idea being to provide at all times a service of cold beer no matter how great the rush may

be. A gauge and adjustment valve to compensate for the differences in each keg of beer is attached to each tank on the face of the cooler. Thus each keg of beer tapped is regulated and treated individually so as to permit a faster draft with a predetermined head and without waste. The unit is insulated with 2 in. of material and the tanks are packed in ice. The manufacturer is Famill Corporation of 303 Fourth Avenue, New York, N. Y.



A 15 Keg Capacity Beer Pump

The beer pump illustrated here has been especially designed for dispensing beer and is rated as having ample capacity for handling in excess of 15 kegs at one time. It is equipped with a special filter at the intake and a moisture trap at the exhaust in addition to a tank drainer, all of which is for the purpose of insuring clean and dry air. The tank drainer is designed so as to automatically drain all of the moisture from the tank each time the compressor stops. This beer pump is sized to fit beneath a barrel and to operate quietly and smoothly as the average refrigerating device. Standard equipment includes a ¼ horse power motor, a 16 gallon supply tank, special filters, a reducing valve and extra gauge and an electric cord. The bore and stroke is 1¼ in. by ⅝ in. The displacement is 1.53 cu. ft. The pressure range is from 25 to 40 lbs. It has two cylinder construction. Service Station Equipment Company, Conshohocken, Pa., is the maker.

Cooling Cabinet for Draft and Bottled Beer

This cabinet is one of a complete line of coolers for draft and bottled beer and other beverages. It will be noted from the accompanying illustration that the lower part of the cabinet contains a storage space. This model has been designed particularly for installations in restaurants, hotels, and other places where both draft and bottled beer are served. The inside liner is made of a rust resisting sheet metal while the outside panels are of a similar metal furnished with a rust-resisting primer and a second coat in green. The lift lids are offset and are light in weight. They are covered with a green mottled semi-hard rubber to match the top. A

Top Speed
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in Every Installation of
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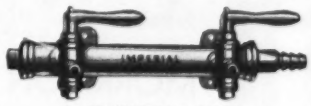
ALL appliances and parts needed for complete installations are included in Imperial beer dispensing equipment. No delays through lack of parts. A handy cutting and flaring kit speeds installations.

TAPPING BUNG

CARBONIC GAS REGULATOR



DISTRIBUTING PIPE

DRAUGHT TUBES

ICE BOX COUPLING

BAR FAUCET

BLOCK TIN FLARING KIT

Write for the revised Imperial catalog No. 440, just off the press

IMPERIAL BRASS MFG. CO.
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Morrison Beer Faucet. Smart in design, sturdy in construction and fast in action.

Morrison Tapping Rods are made of the same quality materials and in the same skillful manner that characterizes all Morrison Beer Fittings.

Morrison Two-Way Distributor carefully made of high quality brass.

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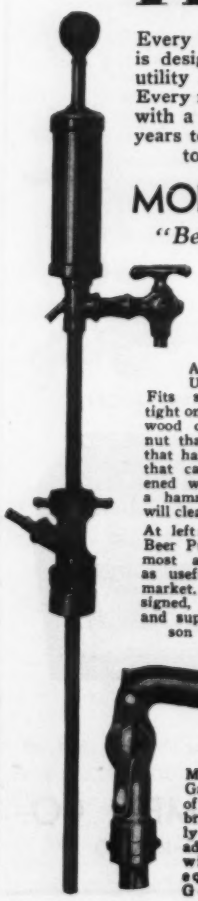
QUALITY BEER FITTINGS

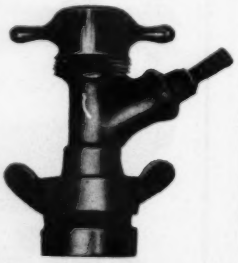


Every Morrison Brothers Quality Beer Fitting is designed for appearance . . . engineered for utility . . . and built to stand hard service. Every modern accepted idea has been combined with a knowledge and experience backed by 78 years to produce Morrison Beer Fittings. Write today for FREE Folder and Prices.

MORRISON BROTHERS CO.
"Beer Equipment Headquarters"
Dubuque, Iowa

At right: Morrison Universal Beer Tap. Fits snugly and stays tight on any keg . . either wood or steel. A wing nut that is not split . . that has added leverage—that can be easily tightened without the use of a hammer . . and that will clear any barrel chime.

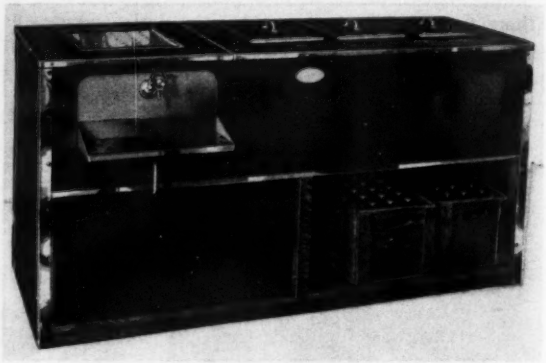
At left: Morrison Picnic Beer Pump is one of the most attractive as well as useful pumps on the market. Smartly designed, sure in action and supplied with Morrison universal tap.



Morrison Golden Gate Taps, made of highest grade brass and precisely machined are adapted for use with barrels, equipped with Golden Gate Bungs.

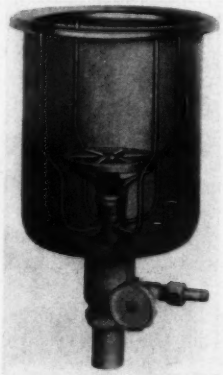
"The only way to get MORRISON Engineering is to buy MORRISON Equipment."

removable stand pipe overflow drain is provided for the water bath. Esco Cabinet Company, West Chester, Penna., is the manufacturer.



Automatic Stein Washer and Rinser

The accompanying illustration shows a phantom view of an automatic stein washer and rinser that has been designed especially for use in connection with dispensing equipment which employ steins. It has been made with the idea of removing any trace of soap or grease, so that the dispensers will not be confronted with the possibil-

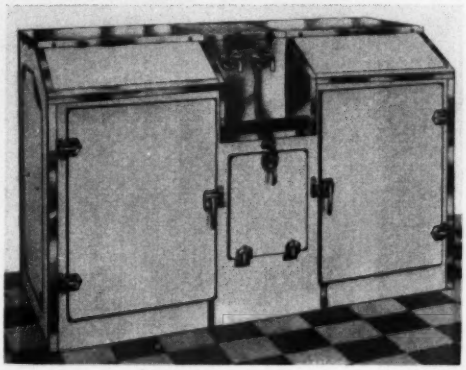


ity of a small film of soap being responsible for the drawing of a flat glass of beer. This washer has been designed to wash and rinse automatically both the outside and the inside of the stein. No water is in use except at the time the stein actually is being washed. It is fitted with a rubber mat and a slight pressure on the stein immedately starts the water flowing. This flow has been made to be constant and provisions have been taken to prevent thumping and hammering. This washer will accommodate steins as large as 16 oz. size. It is made by The Bastian-Blessing Company, 240 E. Ontario Street, Chicago, Illinois.

A Mechanical Refrigerated Bar

Here is a bar which has been designed to meet the demand for properly refrigerated beer dispensing cabinets. The outer frame is insulated with sheet cork board

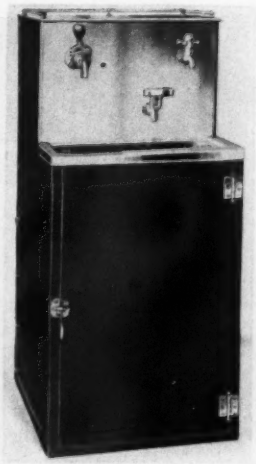
and is faced with porcelain on steel. The top and drain are monel metal. The inner storage tank is of heavy sheet metal and is selected to be rust resisting. A temperature control device can be set to maintain given temperatures so as to insure cold beer at all times. A constant drip of condensate over the barrel surface, as well as storage temperature is afforded by the fan type expansion coils. A storage chamber for steins and bottled beer is located in the center of the bar. Two wire baskets serve this purpose. The barrel storage ac-



commodates 2 one-half kegs. The equipment consists of items necessary for connections such as air and beer hose, tee and shut-off valves. This model is equipped with a 1/3 horse power air cooled unit. The maker is C. Nelson Manufacturing Company, 2300 Division Street, St. Louis, Missouri.

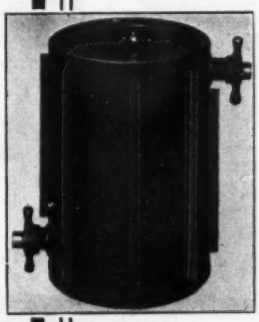
A Pre-Cooling Dispenser

Here is a beer dispensing unit that provides storage space for the keg in the lower cabinet and is so designed that the ice which cools the beer coils, cools the keg



compartment. The unit is described as being all metal. It has an ice capacity of 100 lbs. and it is 23 in. by 23 in. by 49 in. in size. The manufacturer is Allen Filter Company, 25-43 South St. Clair Street, Toledo, Ohio.

KOOL-UNIT
cools beer or water
with Ice or Refrigeration



There is no waste of beer when KOOL-UNIT is installed. Beer is kept clean, wholesome and live at all times. KOOL-UNIT has a capacity equal to 120 ft. of block tin coil, with a cooling area supplemented by extra cooling fins, permitting faster cooling. Vital sales points, a quality product, ready profits!

● Live wire sales representatives wanted in various territories—write!

ECONOMY
Beer Coil Cleaner
Lowers cleaning costs, saves time and really cleans. Includes hoses and fittings and compound for 20 cleanings, $6.50 complete. Liberal trade discounts.

The SPERO CORPORATION
2560 E. 33rd St., CLEVELAND, OHIO

Always
EFFICIENT

The same high quality that has long characterized DeVilbiss Air Compressors is built into DeVilbiss Beer Pumps. DeVilbiss has designed a line of pumps expressly for the dispensing of beer. They are noiseless and vibrationless ...fully automatic in operation...economical to run...producing a constant supply of clean, oil-free air at the desired pressure. Write for folder. The DeVilbiss Company, 307 Phillips Avenue, Toledo, Ohio.

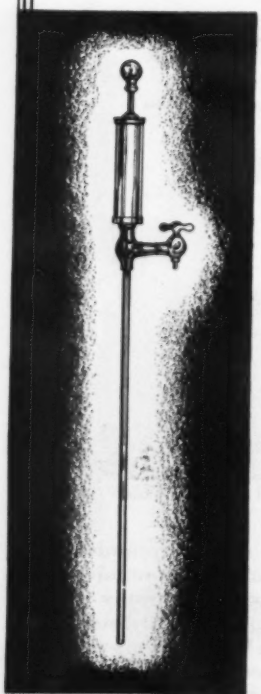
DeVilbiss

Boost your SALES WITH . . .

BEER PUMPS

● Picnic Pumps are not only used in the summertime on picnics. *Wherever* and *whenever* a barrel of beer is used, a picnic pump must be there with it. At homes, at clubs, at restaurants or road-houses . . . where people gather and beer is served, a picnic pump is essential.

The Fisher Picnic Pump is designed for just this purpose. Small, compact and efficient, this pump guarantees quick, satisfactory action at a new low cost. Here are possibilities for *immediate sales, quick turnover* and *substantial profits.* Just give the Fisher Picnic Pump half a chance to show you. Write us for complete information.



(Furnished on specification with New York type Drive Bungs or "Peerless" type Taps.)

OTHER BEER EQUIPMENT

Beer and Water Taps
Tap Rods
Overflows and Sockets
Ice Box Couplings
Coil Cleaners
Beer Switches
Air Distributors
Swing Spout Faucets
Regulators
Coil Covers

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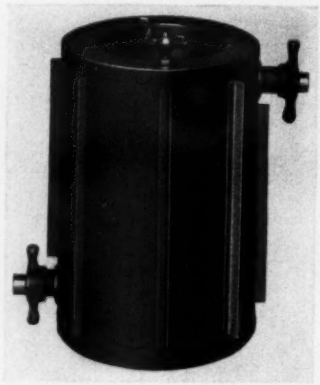
FISHER BRASS, INC.
MARYSVILLE, OHIO

FISHER QUALITY FIXTURES

NEW YORK OFFICE and WAREHOUSE, 442 W. 49th ST.

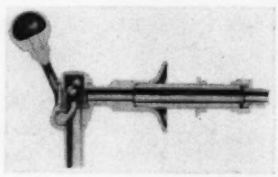
Unit for Beer or Water Cooling

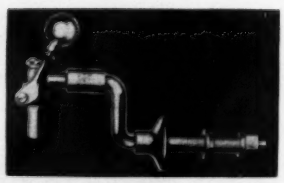
The accompanying illustration shows a unit which has been placed on the market for cooling either beer or water. It is described as having a large cooling capacity and as being easy to clean. The Spero Corporation, 2560 E. 33rd St., Cleveland, Ohio, makes it.



Line of Beer Faucets

The two accompanying illustrations show respectively a cross section and an exterior view of one part of a line of beer faucets which has been placed on the market. It is stated that every part throughout the whole



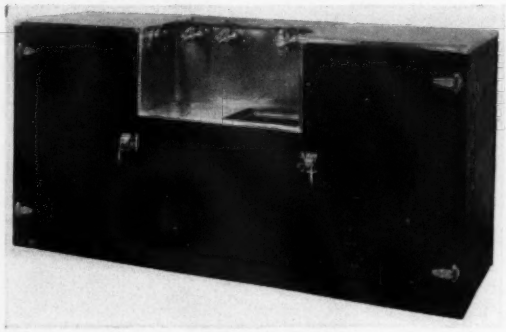


faucet in contact with beer is tinned and can be cleaned and flushed easily without opening the faucet. This equipment has been designed to eliminate the so-called beer faucet squirt. The faucets are made of bronze in chrome and brass finish. These faucets are regularly furnished with ⅜-in. couplings and 2 ⅜-in. shanks as standard. Brew Tapping Apparatus, Inc., 57th Street and Broadway, New York, N. Y., is the manufacturer.

A Two Half Barrel Capacity Bar

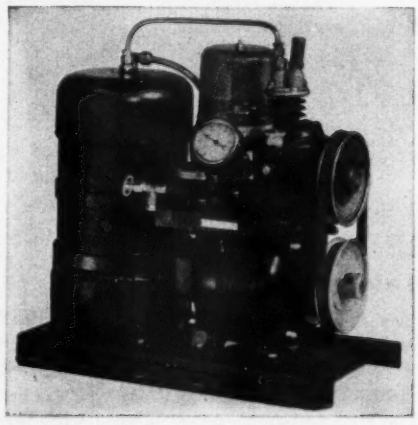
The bar shown here is listed as being complete with a two ½-barrel capacity. It has two beer faucets and one water faucet, a rinsing sink and a storage compart-

ment large enough for 72 bottles in ice. The beer faucets are connected to 35 ft. of block tin coils, while the water faucet is connected to a 20-ft. copper coil. The coil tank is constructed with a flue arrangement. While this model is finished complete with sufficient air and beer hose, no barrel tap fittings or air gages are furnished. This is manufactured by Southern Equipment Company, 5017 South 38th St., St. Louis, Mo.



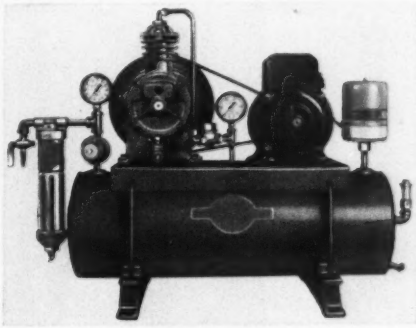
Air Compressor for Pumping Beer

One of the main features listed in favor of the equipment shown in the accompanying illustration is the precision in all bearing surfaces, which is listed as being held to a tolerance of 1/10,000 of an inch. The crank shaft is made of an alloy steel forging and is hardened, ground and drilled for an oil flow through its center to the connecting rod bearing. The oil system is designed without valves, and to provide a constant circulation of oil from a reservoir containing sufficient for approximately a year's operation. The pump is designed to operate at a pressure of 200 lbs. A 1/6 horse power repulsion induction motor is used. The unit is 8 in. by 17 in. by 16 in. in size. Buell Manufacturing Co., 2975-77 Cottage Grove Avenue, Chicago, Illinois, is the maker.

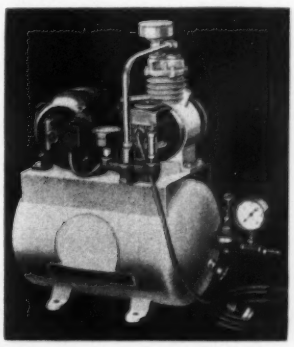


Pump and Filter Combination

A capacity of from one to five barrels is listed for the beer pump which is shown in the accompanying illustration. It is furnished complete with an air filter. Other features claimed for it are that it has an especially designed air cooled compressor and will not splash oil. The air tank has a capacity of 5 gallons. Also, it has a drain valve and a pop safety valve set at 75 lbs. The automatic stop and starter switch maintains an air pressure between 30 and 50 lbs. When pressure in the storage tank is reduced through use to 30 lbs. the motor starts automatically and operates the compressor until the pressure in the storage tank again reaches 50 lbs. The air filter is designed to remove any possible moisture



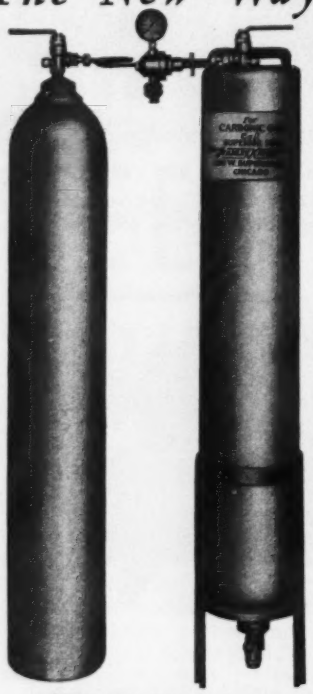
or oil caused by condensation, from the air as it leaves the storage tank. The moisture and oil collect in the base of the filter from which it is drained by opening the drain valve at the bottom. A felt air filter is provided in addition to the air line oil and moisture filter. The motor is ¼ horse power. Two gauges, one to show the air pressure in the storage tank, and the other a barrel pressure gauge, which is controlled by a specially designed hand regulating valve for the pressure desired. are provided. The maker is Ideal Automatic Beer Pump Co., 4750 W. Washington Blvd., Chicago, Ill.



Air Pump for Drawing Beer

A constant supply of fresh air automatically furnished to beer kegs at all times is the purpose of this beer pump. All of the tank connections have been made at one end of the tank so that the unit can be placed under a shelf or a bar where it is most convenient to regulate the pressure. The drain valve has been made so that a container can be placed under it when condensate is being removed

The New Way to Save MONEY!



Show the beer dispenser or soda fountain operator that by the use of the CO_2 Convertor he can cut his carbonic gas expense in half and you are showing him something that he is vitally interested in—a way to cut operating expense.

With competition all around them it is obvious that a "natural" such as the CO_2 Convertor will interest them to the extent of making sales for you.

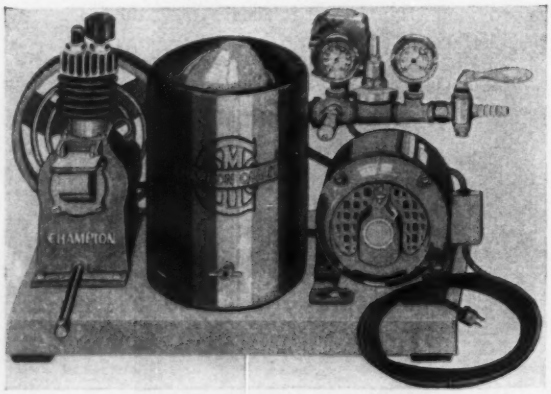
There is still plenty of business around you and with such an attractive proposition as the CO_2 Convertor, you can be the one who gets it.

Exclusive territories are being closed daily for this revolutionary method of dispensing beer. Write now for full details and literature.

We also manufacture Bars and Beer Coolers.

The STANLEY KNIGHT Co.
Superior & Franklin Sts., Chicago

CHAMPION



AUTOMATIC BEER PUMPS

CHAMPION Automatic Beer Pumps furnish beer in the modern, scientific way, assuring just the right amount of foam in proportion to the beer dispensed and so as to make the most of every drop of beer in the barrel.

Moreover it accomplishes this at less than 1c per barrel.

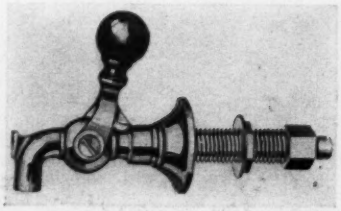
You plug the completely automatic CHAMPION into a light socket and start dispensing. Oil is the only servicing needed.

Motor: 1/6 H.P. standard make—repulsion induction (not split phase)
Capacity: Pumping capacity 5 gallons per minute
Dimensions: Floor space 12" x 23". Height 16".
Shipping weight 110 lbs.

Literature and full details on request.

Champion Pneumatic Machinery Co.
8174-70 South Chicago Ave. Chicago, Ill.

from the tank. This beer pump has been made to be counter-balanced with a double fly wheel designed to eliminate vibration and excessive wear on the bearings. The piston has 3 high compression and oil-proof rings, the combination of which with an air intake filter has been designed to assure a pure air delivery to the beer keg. The United States Air Compressor Company located at 5300 Harvard Avenue, Cleveland, Ohio, is the manufacturer.



A Ground Key Faucet

The accompanying illustration shows a beer faucet of the ground key type. It is available with either a flanged coupling or with a bent coupling. It is for use with ⅜-in. block tin pipe. This is only one item of a large variety of beer dispensing equipment which is manufactured by Crane Co., 836 S. Michigan Avenue, Chicago, Illinois.

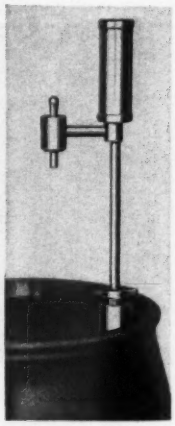
A Single Barrel Cabinet

A single barrel cabinet for dispensing beverages is shown here. It is lined with two inches of insulation. Waste beer is made to flow directly to sewer connections with the idea of eliminating odors. The exterior has been made to be rust resisting and is painted with three coats of lacquer. All of the metal joints are described as being double seamed or welded in addition to being soldered. Forty feet of block tin coil goes with this unit. The ice capacity is listed as 150 lb. It has an outside height of 44½ in., length 28¼ in. and width 28¼ in. The barrel compartment is 24 in. by 24 in. by 27¾ in. in size.

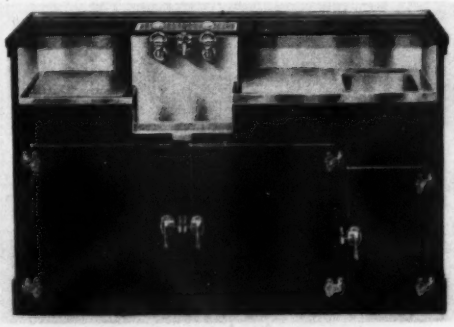
Multiplex Faucet Company, 4319 Duncan Avenue, St. Louis, Missouri is the maker.

A New Line of Pumps and Taps

The accompanying illustration represents a new line of pumps and taps which has been placed on the market for picnic and similar uses. The pump has an inverted



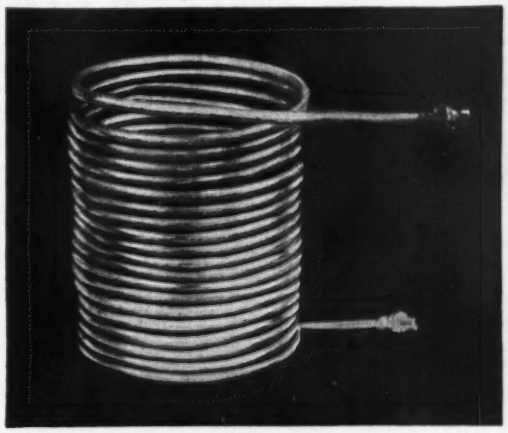
type of cylinder built onto the draw rod. A spring check valve is designed to prevent any back pressures. The faucet has been made to be self operating. As for the tap, this has been made interchangeable for either old or new styles. The manufacturer is Peters and Russell, Inc., of Springfield, Ohio.



Beer Dispenser with Sink

Here is a beer dispensing unit which contains a sink and bottle compartment. The sink and drain are of stainless steel and the size of the sink is 18 in. by 12 in. by 10 in. The length of the entire unit is 70¾ in., while the width is 30½ in. and the height is 36¼ in. There is one inch of insulation throughout. Equipment for this bar consists of two 50-ft. block tin beer coils; one 25-ft. block tin water coil; two chrome plated rubber seated beer faucets; one chrome plated rubber seated water faucet; two 28-in. bent tubes; two taps; two single distributor valves; 4 ft. of ½-in. beer hose; 15 ft. of $\frac{5}{16}$-in. air hose and one regulator gauge and wall bracket. It is made by Rich-Illinois Mfg. Co., located at Morrison, Illinois.

MADANITE
"Pure Aluminum Beer Coil"
CHEAPER
RATS CANNOT EAT IT ON RUNS
NO MORE ICE PICK PUNCTURES
ICE CANNOT CRUSH IT



50' MADANITE
PURE ALUMINUM COIL
IMMEDIATE DELIVERIES
MADANITE COMPANY
53 E. 25th St., New York Ashland 4-8772

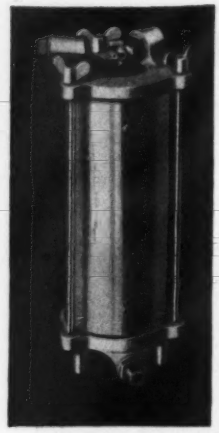
BEER
Fittings

Air Distributors
Bar Faucets
Brass Bungs with Check Valve
Bung Wrenches
Brass Air Cocks
Draught Tubes for Half Barrel
Draught Tubes for Whole Barrel
Draught Tube Cocks with Wing Union Nut and Hose Nipple
Register Cocks with Hex Nut and Hose Nipple
Angle Beer Nipples
Tee Fittings for 5/16" Hose
Unions
Faucet Couplings
"Y" Branches
Rod Elbows
Washout Nipples
Box Connections—2", 3", 4"

Write for illustrated folder giving TYPES, SIZES, etc.

We distribute through Plumbing Jobbers and Wholesalers

KITSON CO.
WESTMORELAND & STOKLEY STS.
PHILADELPHIA PA.



develops a growing patronage because it makes service certain!

The **BLOCH**
CHILERATOR
(patents pending)

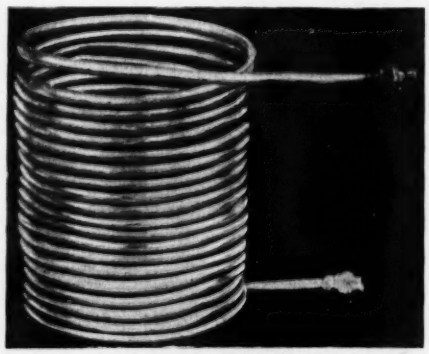
Chills beer instantly . . . provides continuous flow of properly chilled beer . . . prevents riled or wild beer . . . eliminates waste . . . disassembles easily . . . cleans quickly . . . sets a standard of service that wins steady customers.

Write to The
MONARCH ALUMINUM WARE CO.
9301 Detroit Ave.
CLEVELAND, OHIO

Get Your Beer Fittings from Headquarters
A complete and extensive line of brass and rubber fittings. We manufacture rubber air hose, beer hose, washers of every description —leather, rubber, fibre.
Send for the new Keystone Catalog No. 60 before you buy. Get Keystone's Prices. It will pay you.
Keystone Brass & Rubber Co.
811 Chestnut Street
PHILADELPHIA, PA.

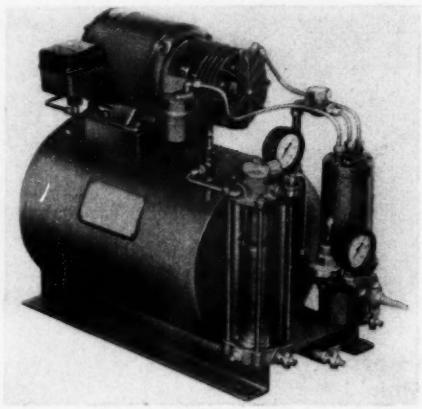
Aluminum Tubing for Coils

The illustration below shows a coil made up of aluminum tubing. It just recently has been placed on the market for use in connection with cooling and dispensing beer. It is claimed that ice surrounding this coil cannot crush it or that an ice pick cannot puncture it. The manufacturer is Madanite Company, 53 East 25th St., New York City.



An Automatic Beer Pump

This automatic beer pump is furnished with a visible water air washer. The unit has been made with special precautions taken to keep the air free from oil, moisture and other impurities which would contaminate the beer. The compressor has been designed without valves. In addition, it is directly connected to the motor and is described as being completely ball bearing. Two pressure gauges are furnished as standard equipment, one showing the pressure in the tank and the other the pressure in the barrel. A pressure reducing valve also is supplied which usually is set at 10 lb. This pressure can be raised or lowered to suit conditions. An oil separator is included to prevent any oil from entering the tank. The pressure regulator of the diaphragm type is set to start the compressor at 25 lb. and to stop it at 35 lb. This variation can be changed. The tank has a capacity of 10 gallons and is fitted with a drain valve and a safety valve. Weil Pump Company of 325 W. Huron Street, Chicago, Illinois is the manufacturer.

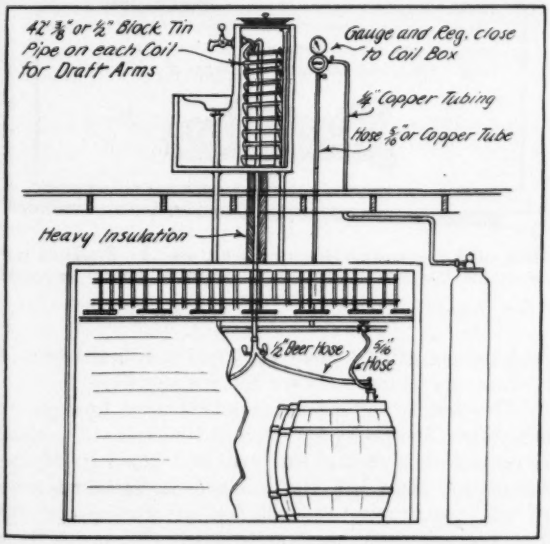


Best Equipment—

(Continued from page 131)

purveyors entering this field of supplying equipment. We believe that every master has a natural advantage over any other merchandiser that should make him the logical outlet for this equipment if he will but put forth the effort to use it.

"We find it very profitable to take advantage of our strategic position, and have done so in this way. Realizing that we are skilled mechanics and are in a position to make an installation and give service better and more complete than anyone outside of our profession, we decided to give prices and estimates on complete installations only. By giving a price on beer equipment, sinks, drainage, hot and cold water supply, wiring, gas drums, or air pumps and air lines, bars if the occasion requires it, etc., our quotation stipulates that for a certain price the job is complete in every respect, ready to open for business and draw beer, the purchaser to furnish beer only. With a quotation of this nature you need not


42 3/8" or 1/2" Block Tin Pipe on each Coil for Draft Arms
Gauge and Reg. close to Coil Box
1/4" Copper Tubing
Hose 3/8 or Copper Tube
Heavy Insulation
1/2" Beer Hose
5/8" Hose

Design drawing of what the Pinski organization considers a proper installation

worry about the barnstormer, regardless of what he may offer or at what price.

GROWING VOLUME

"We are very much pleased with the business we have done and are surprised and pleased to find that we were mistaken in our belief that the profitable volume would last only a short time. The trend of our experience indicates that it is only well started, and will make a profitable line for a long time to come. The skids under the 18th amendment are smoking, it is traveling so fast to the archives of history. With the advent of hard liquor, real money will be invested in the dispensing industry.

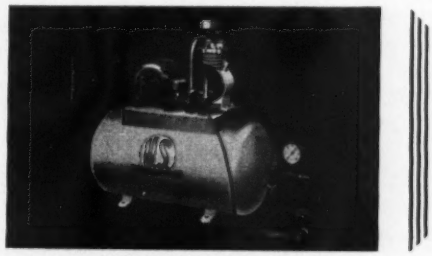
"To illustrate the development that is taking place in dispensing equipment, our books show that our average daily sales for the first month were $50 and that they have increased right along, indicating that the daily

NEW U. S. IMPERIAL
BEER PUMP

Here at last is a beer pump that will blend and add dignity to any fine modern piece of bar equipment. Comes in a beautiful 3 color combination and is made in two sizes: Model BR-12, shown here has a 12 gallon tank and handles from 5 to 10 spigots and Model BR-6 has a 6 gallon tank and handles from 3 to 5 spigots.

New in design and construction, they are built by a manufacturer who for a quarter of a century has pioneered and led the field in air compressor manufacturing.

U. S. Imperial Beer Pumps are scientifically designed and built. They are not to be compared with ordinary, cheap beer pumps which are assembled out of old, obsolete parts that can never be replaced *Send in for our latest bulletin on beer pumps*



Model BR-12—Imperial Beer Pumps

The United States Air Compressor Co.
5300 Harvard Avenue, Cleveland, Ohio
Air Compressors • Air Towers • Greasing Equipment
Car Washing Systems • Hydraulic Lifts

Read This Out Loud

—and Learn the 3 Big Reasons Why . . . "KORN" Leads the Field in Beer Equipment

Write for our illustrated Catalog.

(1)—KORN will not sacrifice quality for price.
(2)—KORN offers you modern improvements at no extra cost.
(3)—KORN units are built to last a lifetime . . . you can depend on it.

KORN BEER COOLER—MODEL 900

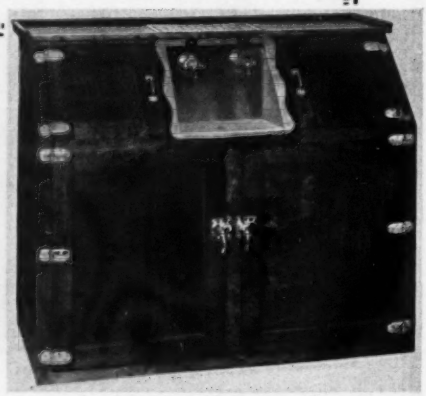
Model 900 illustrated above is the latest KORN creation. The direct icing units and cork insulation are scientifically arranged.
The Box is made of kiln-dried Oak, strongly reinforced. The jacket is made of heavy, stainless steel, guaranteed not to tarnish.
Interior is copper-lined, double locked and soldered.
Standard coil box includes 12" Bar Drainer. Made in sizes from 24" to 42".

JULIUS KORN COMPANY
937 WEST 19th STREET . . . . . CHICAGO
Brass Goods—Drain Boards—Novelty Boxes—Bars—Coil Boxes
Back Bars

SUPERIOR
DRAFT BEER
DISPENSERS
AND
BEER NOVELTY
CABINETS

MODEL ZX—2
½ BBL.
ICE CAPACITY—
100 lbs., in Coil Box
DIMENSIONS:
Length 51"
Width 26"
Height 42"
THIS CABINET IS SOLD COMPLETELY FURNISHED WITH NECESSARY TAPPING EQUIPMENT

STANDARD EQUIPMENT
2 Chrome plated beer faucets
2 Peerless taps
2 ½ bbl. bent tubes
1 2-way Distributor
Stainless Steel Sink
Stainless Steel Top Drain
1 Gas Regulator and Gauge
15 Ft. Air Hose
5 Ft. Beer Hose
2 25 Ft. Coils Block Tin Pipe



BEER EQUIPMENT CO.
1438 W. Lake St., Chicago, Ill.

The Standard of Comparison

For more than 77 years PERKES has set the "standard of comparison" for Beer Equipment and accessories. Frequently you hear "almost as good as PERKES" or "how does it compare with PERKES?" PERKES is the standard of comparison among the trade.

Why not use the "best" cocks, bungs, rods, faucets, pumps and fittings in your own installations? Particularly when PERKES equipment costs no more than the ordinary kind! PERKES equipment means satisfied customers because PERKES *hand ground* cocks permit no wasteful leaks. And satisfied customers mean more installations and bigger profits for you.

Write now for our FREE illustrated story

CHARLES PERKES COMPANY
1508-14 N. Mascher St.
Philadelphia, Penna.
Manufacturers for more than 77 years of beer equipment and accessories

average will reach $150 to $200. At present the greatest bulk of this business is being picked up in the surrounding towns and villages, and we have barely scratched the surface. These figures are confined to dispensing equipment. Along with that we have naturally picked up a good volume of other sales that would not have materialized otherwise.

"Practically all sales of several hundred dollars and up are financed. Sales not financed are strictly cash. We receive a substantial down payment and the finance companies are glad to buy the contracts from us, stating that they prefer this type of paper.

"As I stated before, we are firmly convinced that this business is a long way from being washed out.

BEER
Equipment
Our refrigeration department can equip your bar with an Anheuser Busch draught beer cabinet complete with refrigeration unit. Novelty boxes, bottle beer cabinets, draught arms, pumps, accessories and servicing. Ask us for estimates of all types of refrigeration.
206 Central
Pinski Bros.
PLUMBING AND HEATING
Phone 2-1221

One of the newspaper advertisements used by Pinski to put over the fact that they were prepared to give a complete service

And we are after it with increased vim and vigor. It is there, spreading out over the entire nation.

"This industry is putting millions upon millions into circulation, increasing by leaps and bounds. The dealer is very close to it and surely he can get a goodly portion of it. If he will open his eyes and take advantage of the opportunity he will find it waiting for him. But his sales will dwindle instead of increase if he starts out with a mark-up that is not comparative in this new industry. To sell this equipment takes money, enthusiasm and ingenuity, and neither one will operate on a shrinking purse."

Beer Tax Brings Illinois More Than $1,250,000 Cash

The assistant finance director of Illinois announces that more than $1,250,000 in revenue has been received by the state from the new license tax on beer.

Receipts for August exceeded July by approximately $21,000, with the prospect of larger receipts for September.

The two-cent-a-gallon tax on malt and vinous beverages brought $172,237.78 into the treasury during August, compared with $151,398.03 collected in July.

Licenses to sell beer at retail had been issued to 16,042 persons by September. Seven brewers, making a total of 27, and 63 importing distributors were licensed in August.

Chicago Exposition—

(Continued from page 128)

bierstube, or beer garden, containing the famous double bar at which twenty-five brands of beer were served daily.

Among those who showed beer dispensing equipment was Aluminum Co. of America, coils; American Brass

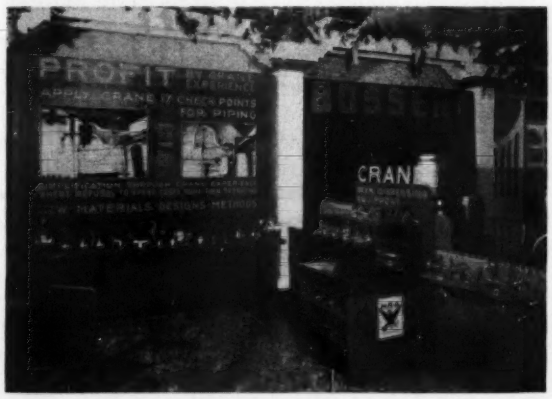


Exhibit of the Crane Co. at the Chicago exposition of beer dispensing and brewery equipment

Co., a coil; American Tap Bush Co., tapping and related devices. Bishop & Babcock Sales Co. showed small bars and accessories; Brunswick-Balke-Collender Co., with bar and fixtures complete; Crane Co., beer faucets on cooler. Frigidaire Corporation exhibited refrigeration in connection with draft and bottle beer coolers; Ideal Automatic Beer Pump Co., pump; Illinois Steel Co., coil. International Nickel Co. showed monel coil in its exhibit; Julius Korn, brass goods, novelty boxes, special bar unit; Liquid Carbonic Corporation, dispensing units.

Imperial Brass Mfg. Co., showed its line of brass goods; Perlick Brass Co., tapping outfits and party pumps; Premier Coil Cleaner Co., beer coil cleaning machines. Seeger Refrigerator Co., cabinets for use with beer coolers, refrigeration or ice.

The entire exposition is, of course, a significant outcrop of the "new deal." Hundreds of thousands of dollars worth of equipment, manufactured since April 7, was shown. The show was held at this time to coincide with the conventions of the American Brewers' Association and the Master Brewers' Association of America.

Premier Coil Cleaner Mfg. Co. used this display to attract attention at the Chicago exposition

Beverage Equipment Code—

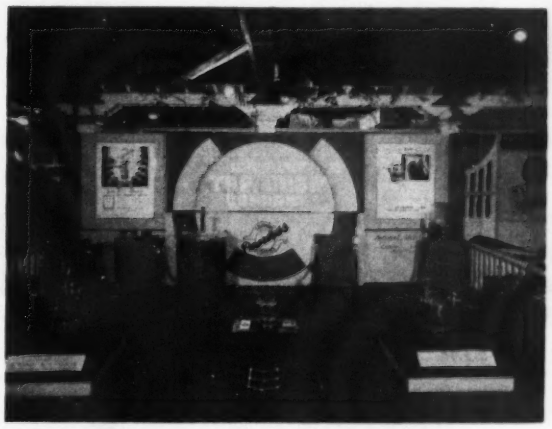
(Continued from page 129)

vanced on the basis of individual merit without regard to their affiliation with any organization.

IV

(a) On and after the effective date employers shall not employ any person under the age of 16 years.

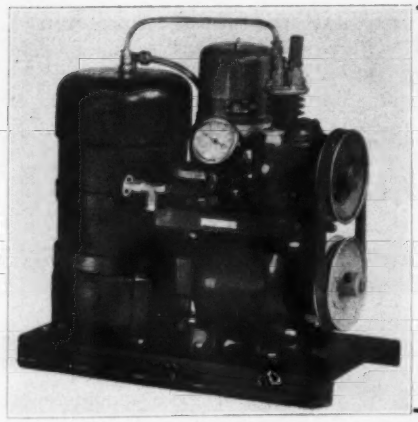
(b) On and after the effective date the minimum wage that shall be paid by any employer to any person engaged in the processing of the products of the beverage-dispensing-equipment industry and in labor operations directly incident thereto shall be 35 cents per hour in the South and 40 cents per hour in the North, unless



Visitors at the Chicago exposition were attracted by this display of the American Tap Bush Co.

the hourly rate for the same class of work on July 15, 1929, was less than 35 cents per hour in the South and 40 cents per hour in the North, in which latter case not to pay less than the hourly rate on July 15, 1929, and in no event less than 30 cents per hour; provided, however, that casual and incidental labor and learners may be paid not less than 80 per cent of such minimum wages, but the total amount paid to such casual and incidental labor and learners shall not exceed in any calendar month five per cent of the total wages paid to all process labor by such employer.

(c) On and after September 1, 1933, the minimum wage that shall be paid by any employer to all other employees, except commission salespeople, shall be at the rate of $15.00 per week in any city of over 500,000 population, or in the immediate trade area of such city; nor less than $14.50 per week in any city of between 250,000 and 500,000 population, or in the immediate trade area of such city; nor less than $14.00 per week in any city of between 2,500 and 250,000 population, or in the immediate trade area of such city; and in towns of less than 2,500 population to increase all wages by not less than 20 per cent, provided that this shall not require wages in excess of $12.00 per



BUELL PUMPS

Built to precision standards. Combine durability with efficiency and economy. Exceedingly compact and quiet. Use the High efficiency compressor so satisfactory on Buell Air Horns.

Buell Mfg. Co.
2991 Cottage Grove
CHICAGO, ILL.

ECONOMICAL TO USE —PROFITABLE TO SELL

THE most compact, self contained, portable cooler on the market—all steel with Celotex Insulation—complete with pump, coil, draft arm, etc.—made in sizes to accommodate either ¼ barrel or ½ barrel and 36 bottles. Also other types of coolers. Write for prices and information.

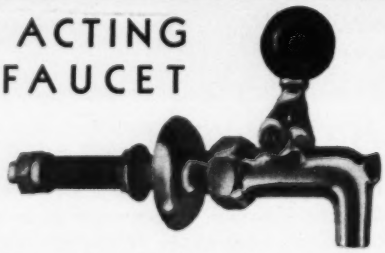
Detroit Metal Specialty Corp.
1651 Beard Ave., Detroit, Mich.

METAL-BILT

METAL-BILT *TU-WAY* *PORTABLE* BEER DISPENSERS

QUICK ACTING BEER FAUCET

Makers of Tapping Rods, Air Cocks, Overflow Tubes, etc.



A union behind the operating handle permits easy adjustment and no interference during operation.

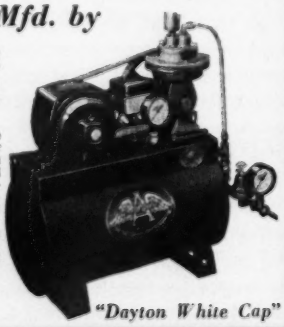
DETROIT BRASS & MALLEABLE WKS.
100 S. Campbell Ave., Detroit, Mich.

An "OIL-LESS" Automatic
BEER PUMP *Mfd. by*
DAYTON AIR COMPRESSOR

POSITIVELY PUMPS NO OIL!

The "Dayton White Cap" beer pump is ideal for dispensing draught beer in large volume—because it assures a good supply of clean, dry compressed air at all times. No pistons or rings—prevents pumping of any oil whatsoever into air line. ¼ HP motor—10 gal. tank—cuts out at 30 lbs. pressure and in at 20 lbs.—quiet operation—V-belt driven. Size 24"x25"x12". Weight—80 lbs. net. Ask about Model Y-100.

The DAYTON AIR COMPRESSOR CO.
"18 Years of Specializing"
425 Valley St., Dayton, Ohio



"Dayton White Cap"

week; provided, however, that office boys or girls, learners, and casual employees may be paid not less than 80 per cent of such minimum wage; but the total amount paid to such office boys or girls, learners, and casual employees shall not exceed in any calendar month five per cent of the total amount paid by such employer to all employees covered by the provisions of this paragraph (c).

V

Employers shall not operate on a schedule of hours:

(a) On and after the effective date, for persons engaged in the processing of products of the beverage-dispensing-equipment industry, and in labor operations incident thereto, in excess of 40 hours per week.

(b) On and after September 1, 1933, for all other employees, except executives, administrative and supervisory employees, outside salesmen, watchmen, and firemen in excess of 40 hours per week, except that repair and maintenance crews, service men or erectors, and chauffeurs and helpers on motor-driven vehicles may work 48 hours per week averaged over each six months' period, provided that the total number of individuals permitted to work a 48-hour average week shall not exceed five per cent of the number of individuals restricted to a 40-hour maximum week.

VI

The supervising and fact-finding agency for this industry shall be the National Beverage Dispensing Equipment Association, 1427 Eye Street, NW., Washington, D. C. The manufacturers shall furnish to this agency duly certified reports every four weeks showing number of employees, maximum hours worked by an employee in any week, and actual hours worked by the various occupational groups of employees and minimum hourly wages. It shall be the duty of this agency to compile these figures when, as, and if the President requires such compilation. It shall also be the duty of this agency to investigate and develop facts regarding complaints from any source and present the resulting data to the Administrator when circumstances warrant and when so instructed by the Association.

VII

Any employer may participate in this Code and in any revisions or additions thereto and receive the benefits thereof by accepting the proper pro rata share of the cost and responsibility of creating and administering it, either by becoming a member of the National Beverage Dispensing Equipment Association or by paying to it an amount equal to the dues from time to time provided to be paid by a member in like situation of National Beverage Dispensing Equipment Association.

VIII

The President may from time to time cancel or modify any order, approval, license, rule, or regulation issued under Title I of the National Industrial Recovery Act.

IX

The industry may, when facts become available, present to the President for his approval necessary means for eliminating destructive competitive practices and stabilizing the industry; also alterations of this Code to accomplish this end.

Sales Helps for Dealers

Folder on Automatic, Electric Beer Pumps

Janette Manufacturing Company of Chicago, Ill., has issued a folder describing and illustrating its line of automatic, electric beer pumps which are designed to meet every requirement of restaurants, clubs, hotels or taverns.

Circular on Cooling and Dispensing Equipment for Beer

The Edwards Manufacturing Company of Cincinnati, Ohio, is distributing a circular describing and illustrating its cooling and dispensing equipment for beer, including coil boxes, block tin coils, beer switches, draft tubes, bar faucets, and air distributors.

Circulars on Beer Dispensing Accessories

The Rud Mueller Mfg. Co. of Chicago, Ill., has issued several circulars describing and illustrating its beer dispensing accessories, such as bar faucets for beer and water, combination beer and water faucets, beer draft arms, and beer dispensing kegs for direct icing.

Circular About Beer Coil Cleaners

Industrial Chemical Products Company of Detroit, Mich., is distributing a circular describing and illustrating a new beer coil cleaner, which is said to be simple, convenient, efficient and economical This equipment is so easily operated that the beer coils may be cleaned in a few moments, at a time when it is most convenient to clean them.

Broadside on Beer Dispensing Apparatus

Holderle Bros., Inc., of Rochester, N. Y., have issued a broadside, 25x19 in., containing descriptions and illustrations of their mechanically refrigerated or direct ice types of beer dispensing apparatus, including deep coil boxes, novelty boxes, work boards, standard bar drainers of brass and German silver, beer faucets, beer pumps, distributing pipes, bungs and rods, taps and brass connections, etc.

Circular on Liquid Meters

The Liquid Meter & Register Co. of Chicago, Ill., is distributing a circular featuring its liquid meter, a new type meter, that measures automatically the desired amount of beverage drawn through the faucet in ounces, pints, quarts or gallons. It can be used for either glass or bulk beer trade, and it is stated that its use will produce an even, smooth flow of beer without excessive foam and drippage.

Circular on Beer Equipment

The Kingery Manufacturing Co. of Cincinnati, Ohio, is distributing a large circular illustrating and describing its line of coil boxes, combination service bars and work boards, combination serving counter and work board, and novelty boxes. This equipment is of steel chassis construction, angle iron with steel panels covered with formica; bar tops are of formica, and the work boards of stainless steel. The coil boxes are insulated with 2-inch cork.

$ Worth a Great Deal of Money to You...

Brunswick

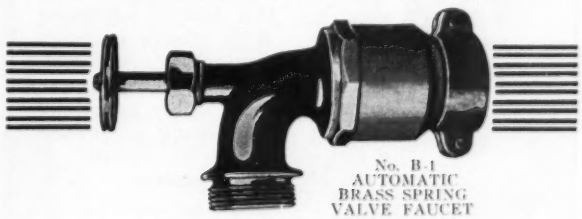
has had greater experience with bar fixtures than any other house in America. It has been leader in this field for nearly 90 years. Its line is the most extensive. Brunswick's practical experience can be extremely valuable to you in making profitable installations for your customers. You have only to write to

THE BRUNSWICK-BALKE-COLLENDER CO.
623-633 South Wabash Ave., Chicago, Ill.

and it's Yours for the Asking!

NRA WE DO OUR PART

FARNAN
Beer Dispensing Equipment



No. B-1 AUTOMATIC BRASS SPRING VALVE FAUCET

for 81 *years*

That's the reason for today's overwhelming acceptance of the FARNAN line. 81 years which have been spent in perfecting every piece of beer dispensing equipment in the line.

Air Cocks
Try Cocks
Beer Cocks
Observers
Hose Couplings
Hose Fittings
Vent Bushings
Drain Cocks and Pipes
Combination and Spring Valves for Breweries
Quick Opening Bar Faucets
Draught Tubes and Tapping Bungs
Couplings for Faucets and Tubes
Distributing Pipes
Regular Brass Air Cocks
Water Stop Cock Connections
Overflows and Sockets
Tank Fittings
Ice Box Couplings
Brass Gauge and Regulator Arms
Beer Pipe Cleaner Couplings
Beer Pipe Cleaners

THE FARNAN BRASS WORKS CO.
Manufacturers of
High Grade Brass Products
Established in 1852
1104 Center St., N.W., Cleveland, Ohio

BEER BARS

Hotel and Restaurant Cooking and Serving Equipment and Supplies.

China — Glassware — Silverware

Write Today for Catalog No. 40 and Low Jobbers' Net Prices.

No. 20 BAR with body attractively finished in the new brown crystal enamel. *Ten other models in stock for prompt shipment.*

DUKE MANUFACTURING CO.
ST. LOUIS, MO.

BEER and AIR HOSE
(RED C. I. TUBING)

Made with a high-grade, WHITE, tasteless inner lining and a tough, RED, rubber cover.

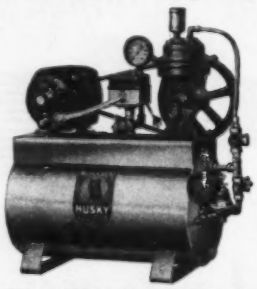
5/16"—3-ply (Air)
3/8"—3-ply (Air)
1/2"—3-ply (Beer)
1/2"—5-ply (Beer)

Made in 50-ft. lengths, packed 250 feet in a bale.
We can also furnish Tap Washers, Vents and other rubber parts used on beer dispensing equipment.

If your jobber cannot supply you, write us.

Lavelle Rubber Company
320 WEST ILLINOIS STREET, CHICAGO, ILL.

MONARCH HUSKY COMPRESSOR
Pumps Pure Air Only



No oil fumes to reach the beer. Equipped with bronze bearings throughout, automatically lubricated, quiet in operation, completely assembled ready to install. A ready seller.

Write for exclusive distributor proposition.

The Monarch Engineering Co., Dayton, Ohio

SRM BEER PIPE

STOCK SIZES FOR PROMPT DELIVERY

3/8 inch inside diameter 4, 5, 6, and 8 ounces to the foot; 1/2 inch inside diameter 6 and 8 ounces to the foot. Other dimensions to order.

Made of the purest grade of block tin.

STANDARD ROLLING MILLS
264 Calyer Street - - - - - - Brooklyn, N. Y.

Bulletin on Beer Pumps

Brunner Mfg. Co., of Utica, N. Y., is distributing a bulletin describing and illustrating its line of beer pumps and air filters, air regulators and air valves.

Bulletins on Beer Cabinets, Novelty Boxes and Chests

Northey Manufacturing Company of Waterloo, Iowa, is distributing a bulletin, containing illustrations and descriptions, its line of beer tap novelty boxes, bottle chests, and cellar, back room and cold storage rooms.

Catalog of Draught Beer Cabinets

Commercial Refrigerator Mfg. Co., Ltd., of Los Angeles, Calif., has issued a loose-leaf catalog featuring its line of electric draught beer cabinets for unit or remote installation.

Circulars About Automatic Beer Pumps and Beer Coolers

The Dayton Pump and Manufacturing Company of Dayton, Ohio, has issued two circulars, one describing and illustrating its electric-automatic beer pump, and the other its electric-automatic bottled beer cooler.

Large Folder on Draught Beer Equipment

Robert M. Green & Sons of Philadelphia, Pa., have issued a large folder, 34x11 in., featuring their draught beer equipment, including beer cabinets, dispensing units and storage units with electric refrigeration or for direct icing.

Circular Announces New Aluminum Tube for Beer Coil

The Madanite Company of 53-59 East 25th street, New York City, has issued a circular announcing a new aluminum tube for beer coil work, which is placed on the market in 8-in. coils. The makers state that an ice pick cannot puncture it and that ice cannot crush it.

Circular on Beer Cooling Cabinets Using Ice

Bohn Refrigerator Company of St. Paul, Minn., has issued a circular describing and illustrating its beer cooling cabinets for ice use and its bar coolers. The circular also calls attention to the company's tap and tapping rods, air distributors and faucets, carbonic regulators and air pumps, etc.

Broadside on Bar Equipment

The Vitrolite Company of Chicago, Ill., is distributing a broadside, 21½x17½ in., illustrating and describing its line of bars, back bars, soda fountains and counters, made of vitrolite in jet black, pure white or ivory, jade, gray or orchid, in emerald, walnut, light green or golden agate. These fixtures can be had with stainless silvery metal rims.

Test Beer Pressure at Different Temperatures

The following table shows the pressure to which beer barrels are subjected at various temperatures:

Temperature Deg. F.	Pressure lb. per sq. in.	Temperature Deg. F.	Pressure lb. per sq. in.
35	10	100	54
40	13	110	58
50	21	120	62
60	27	130	66
70	36	140	69
80	43	150	72
90	48	160	75

The above data are supplied by the Monarch Aluminum Ware Co., Cleveland, and are based on laboratory tests.

Brunswick-Balke-Collender Appoints Distributors

The Brunswick-Balke-Collender Co., Chicago, manufacturer of bar fixtures and equipment, announces the appointment of the following distributors, which in addition to its branches located in the principal cities of the United States assures its customers of prompt service: R. Cooper, Jr., 221 North LaSalle Street, Chicago; North Lumber Co., Kalamazoo, Mich.; East Tennessee Electric Co., 612 E. Depot Street, Knoxville, Tenn.; L. C. Wiswell Co., 822 South Michigan Avenue, Chicago; Patterson & Hoffman, Oklahoma City, Okla.; D. T. Lansing Co., Inc., 342-350 Gibson Street, Scranton, Penn.; John Van Benschoten, Inc., 14-24 Catherine Street, Poughkeepsie, N. Y.; The Post & Lester Co., 89 Broadway, Providence, R. I.; The Tri-State Electric Co., 407 E. 8th Street, Sioux Falls, S. D.; The Albany Garage, Inc., 28 Howard Street, Albany, N. Y.; Ben E. Keith Co., Fort Worth, Tex.; Automobile Sales Co., Inc., 259 Monroe Avenue, Memphis, Tenn.; Rackliffe Bros., Co., Inc., Park & Bigelow Streets, New Britain, Conn.; Loubat Glassware & Cork Co., 510 Bienville Street, New Orleans, La.

Bastian-Blessing Reopens Michigan Plant

The Bastian-Blessing Co., Chicago, manufacturer of beer dispensing and soda fountain equipment, is reopening its Grand Haven, Mich., plant. Operations are being maintained at the company's Chicago and Cleveland plants.

Baltimore Office in New Location

Pure Carbonic, Incorporated, of New York City, has just announced that its office in Baltimore, Md., has been moved from 1001 North Calvert street to 227 South Central avenue. The company's warehouse will also be located at the new address.

Will Concentrate on the Manufacture of Beer Pumps

The Air Specialties Manufacturing Company of Chicago, which recently sold its patent rights for the manufacture of beer faucets and its stock of beer dispensing fittings, will in the future concentrate on the manufacture and sale of electric beer pumps.

JOHN G. KELLY, INC.
Distributors
210 E. 45th St., New York City

WATTS
REGULATORS *for* BEER DISPENSING EQUIPMENT

Watts No. 26 AC Regulator, the perfect regulator for all types of air compressor equipment for controlling air pressure to beer barrels. Easily adjusted and holds accurately. Just the right pressure on the beer.

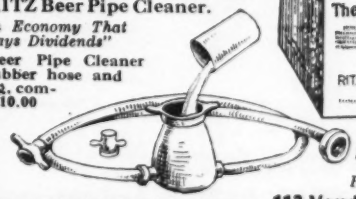
Manufactured by
Watts Regulator Co.
Lawrence Massachusetts

BEER TASTES TERRIBLE
Unless beer pipes are clean

Years of widespread use have developed the finest agency for good, clear, tasty beer, in RITZ Beer Pipe Cleaning Compound for use with RITZ Beer Pipe Cleaner.

"An Economy That Pays Dividends"

Ritz Beer Pipe Cleaner with rubber hose and coupling, complete..$10.00



Sold in Boxes of 24 Cans Per box..$3.00

RITZ CHEMICAL CO., 113 Vanderpool St. Newark, N. J.

BLOCK TIN PIPE

● Our block tin pipe has long been standard for beer-dispensing equipment. It is made from virgin metal only and can be depended upon for high quality and uniformity. For sizes and prices or other information, write nearest branch.

NATIONAL LEAD COMPANY
New York, Baltimore, Buffalo, Chicago, Cincinnati, Cleveland, St. Louis; National-Boston Lead Co., Boston; Georgia Lead Co., Atlanta; Gibson & Price Co., Cleveland; National Lead & Oil Co. of Pennsylvania, Pittsburgh; John T. Lewis & Bros. Co., Philadelphia.

WACO
AUTOMATIC • COMPACT

Most Popular Beer Pump in America

Write for details and territory offerings

WATER APPLIANCE CO.
805 N. SECOND ST., MILWAUKEE, WIS.

ECONOMICAL • OIL FREE

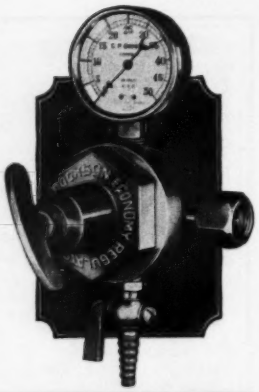
New Model, Low-Priced

ECONOMY REGULATOR

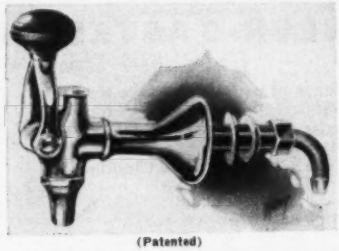
A full-size carbonic gas regulator that combines economy with utility —made possible by the recent development of a special new metal. Built on the same time-tried principle as the famous American Standard Dockson Regulator. Sturdy, accurate and trouble-proof.

Write for Dealers' Proposition

C. H. Dockson Co.
2881 E. Grand Boulevard
Detroit, Mich.



STEADY FLOW OF BEER



(Patented)

You are sure of this with Hajoca Direct Stream Control Beer Faucets. Tap operator has beer stream and head under complete control. No Squirt. No Waste. No Excess Froth.

Taprooms everywhere are prospective customers for Hajoca Stream Control Beer Faucets. Order a dozen today.

HAJOCA CORPORATION, PHILADELPHIA, PA.

PLUMBERS and OTHERS

$200 to $400 per month extra income is yours

Hundreds of plumbers and coil cleaners in all parts of the country are making up to $400 per month establishing valuable beer coil cleaning routes with the use of the new PREMIER (natural scouring method) BEER COIL CLEANING MACHINE. Chemicals and steam are banished forever with this new Premier Method, which is rapidly being adopted by leading breweries and beer distributors, thus making the forming of beer coil cleaning routes easy through cooperation obtainable through your local Brewers or Distributors. *Start a valuable coil cleaning route in your city at once by writing today for complete information.*

PREMIER COIL CLEANER MFG. CO.
208 S. LaSalle St. Chicago, Ill.

The ARISTOCRAT
ELECTRIC Beer Pump

Compare the ARISTOCRAT with other beer pumps. It is years ahead in design and performance. Back of the ARISTOCRAT are years of experience in the building, testing and handling of this type of equipment. Some territory is still open for live representatives. Write now.

AIR SPECIALTIES MFG. CO.
902 North Spaulding Avenue, Chicago

States Study Plans for Liquor Control

Many states are studying the question of how to handle the repeal of the prohibition amendment. In preliminary studies of how to meet the return of liquor, some of the governors have appointed special commissions to study the problem and recommend a form of liquor control.

These commissions are holding hearings, affording an opportunity for advocates of one form or another of liquor control to present their arguments and to assist the commissions in their final recommendations to the governor who appointed them.

Typical of the viewpoint of those who feel that liquor should be sold over the bar is the testimony given before the special Illinois commission by Walter L. Gregory, president of the Palmer House and Ernest Byfield, president of the Hotel Sherman, both of Chicago, speaking for the Chicago Hotel association. They presented a report recommending a high retail license and fairly high taxes along with sale of liquor across the bar.

Mr. Gregory advised against hasty adoption of laws, pointing out that there exists a new attitude toward liquor as a result of the prohibition era. This attitude should be carefully sounded out and considered, he said.

"You will never succeed in abolishing the bar, regardless of what laws you pass," Mr. Gregory told the members of the commission. "If public consumption is forbidden there will be private drinking with pathological effects comparable to those of dope addiction.

"There will be from 10,000 to 15,000 speakeasies in this area paying no tax, recognizing no supervision, and serving as headquarters for the most highly organized crime of all time if the quantity sale and transportation of liquor is legalized but its lawful sale across the bar prohibited.

"The complete public bar, properly regulated, will invite no more criticism than today's beer dispensaries.

"If there is a fairly high tax, a state license fee of $1,000, and a city license fee of $1,500, there will be less drinking of hard liquor than under the package sale system."

Attorney Thomas J. Howe, appearing before the commission in behalf of the 1,000 members of the Cook County Retail Fermented Liquor Dealers' association, joined in the plea for sale of liquor for consumption on the premises, but warned against too high license fees for tavern owners.

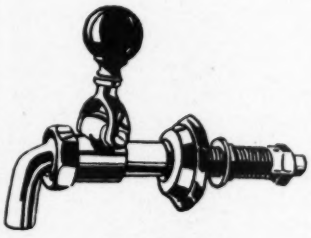
Manufacturers' Agents

If you are a manufacturers' agent, interested in the sales possibilities of beer dispensing equipment, make use of the service we maintain for the convenience of manufacturers' agents and manufacturers alike. Register your name with us. We are in a position to bring together reliable agents and manufacturers.

WRITE TO
BEER EQUIPMENT DEALER SECTION
DOMESTIC ENGINEERING
1900 PRAIRIE AVE. CHICAGO

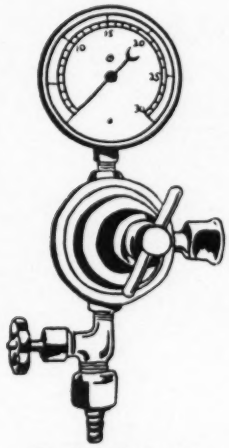
BEER EQUIPMENT

For Immediate Delivery



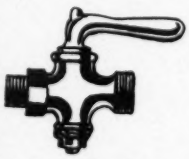
Beer Faucet
Quick Opening $2.90

Water Faucet $2.75



No. 22 Carbonic Gas Regulator $5.50

No 9 Bung Wrench 5c



Water Stop Cock

No. 33 Brass Bar Rack Bracket
1½ in. Rail—45c
2 in. Rail—55c

No. 34 Brass Floor Bracket
1½ in. Rail—45c
2 in. Rail—55c

Air Cock 40c

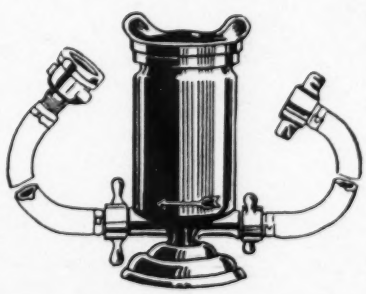
Rubber Bung 20c

Bung and Rod $2.25

2-Way Distributor $1.25

3-Way Distributor $1.85

Air Pump $3.75



Grand Beer Pipe Coil Cleaner $12.50

Duplex Metal Covered Beer Coolers

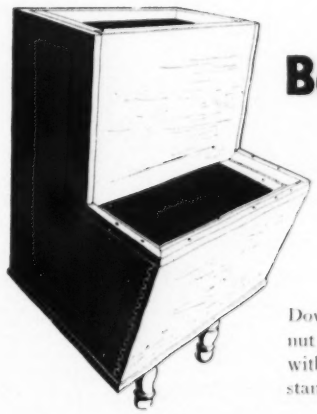
THIS cooler is built to meet the popular and immediate demand for a substantial yet inexpensive beer cooler, designed by men who have had experience in construction and beer dispensing. It exactly fits the requirements.

Quality has been combined with quantity production, permitting a price which cannot be otherwise approached.

The illustrated Metal Cooler complete only **$72**

24 in.-30 in.-36 in.-42 in.
Coolers on Hand

Shell Beer Coolers



	Painted 1-12	Unpainted 1-12
No. 24	$ 8.50	$ 9.00
No. 30	9.00	9.50
No. 36	9.50	10.00
No. 42	10.00	10.50
No 48	10.75	11.00

Dovetailed construction, chestnut wood, straight back, lined with one-inch cork. Made with standard construction

1 in block for coils and runs ..... 53c lb
Rubber Beer and air hose ⅜ in and ½ in. ..... 12c ft.
Bar Railing—Brass ..... 15c ft

Prices quoted above are the lowest jobbing prices to the wholesale trade. Compare these with other prices—we will then be sure of your order. No discount allowed and no orders filled for less than $10.00 at the above prices. Prices subject to change without notice.

Send for quotations on any other equipment you may need. All orders shipped in 24 hours.

We issue no catalogue.

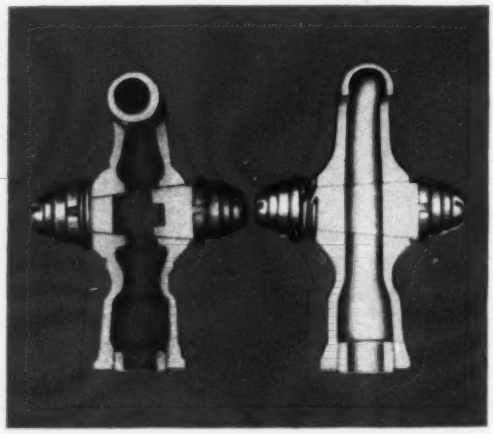
JONES-ACKERSON COMPANY,
40 Treat Place, Newark, N. J.
Sirs
Please find enclosed $ ..... Ship us the following:

Quantity	Description	Amount

Ship by ..... F.O.B. Newark, N. J.
Name .....
Address .....

BEER EQUIPMENT DEALER
Section of
DOMESTIC ENGINEERING·

WHAT THE OLD SAW TEACHES—



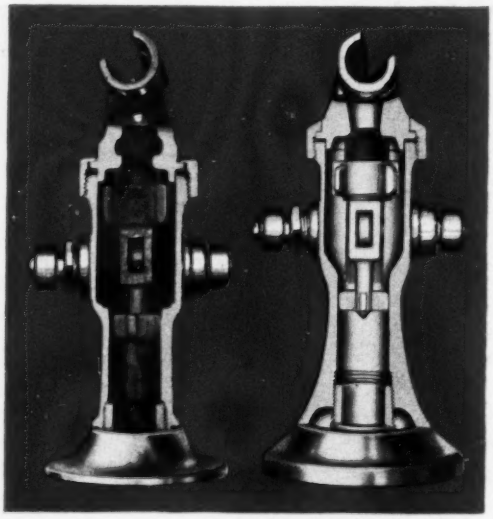
Not only does it afford a look on the inside of things — thus revealing merit or the lack of it. There's the old saw which teaches that you pay for what you need, whether you get it or not. For proper and profitable beer dispensing, you *need* apparatus built as dictated by years of practical experience, precisely, rightly. Anything less, costs you more in the long run.

Just a Beer Faucet

—but look what the old saw has to say about it. Look at the wiggly outline of the channel! Just one jaggy corner and baffle after another, agitating perfectly good beer into a frothy, foamy rage and making customers feel they're not getting their money's worth at all, or that the perfectly good beer is "punk." Meanwhile, slimming profits bear out the old saw—and this "bargain" faucet keeps on costing more and more daily, because it doesn't serve beer right.

A "Basbleco" Faucet

—according to the old saw, this faucet, with its smooth, stream-lined channel doesn't agitate and rile up the perfectly good beer in its passage to the stein. It helps get the right collar, and pleases customers. Furthermore, the white inside is not a fancy of the retoucher. The saw, again, will show this whiteness as being due to an inside lining of pure tin plating. It does away with another bugbear to perfectly good beer — metallic taste.

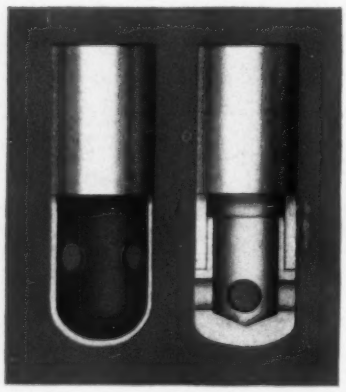


All Right Except—

Here's a quick-opening beer faucet that's supposedly a bargain. Let's see what the old saw discloses in this: There is the jaggy channel, again, to confuse and baffle the good beer into that costly rage. Up above the rubber plug, there's another broken outline. But the really sad thing is the plain, brass lining inside—giving the profit-killing, "metallic taste" a great chance to come to bat and knock your profits for a loop. But if profits don't count, it's a bargain.

As "Basbleco" Does It

First of all, note the smoothly finished, streamlined channel. No agitation of the beer. Then, note, also, that the insides are lined with silver plating. Costs a bit more, but metallic taste, which it insures against, costs much more throughout the years. Here's the old saw's proof of the pudding: that it pays to buy the right sort of material and apparatus. Especially does it pay you to insist upon "BASBLECO," to complete the fine job the brewer only started—to dispense beer properly and profitably.



A Tapping Tube?

—stuck down in the keg, it may be ungloried and unsung, such as this tube justly deserves. Its flimsy, thin, skimpy walls portend a short life, and a cripply, distorted one. The tip inlet also is too high up, leaving about 5 steins waste in the barrel bottom, or 50c loss per keg.

—And a "Basbleco"

Again the good old saw gives us a show-up of what a tube should be — and what a "BASBLECO" tube really is. Husky, thick, seamless brass, pure-tinned inside and out. Detachable tip means easy, economical replacement. Low tip inlet affords greatest practical protection against waste.

"BASBLECO" gives you what you *need*—apparatus with a reputation and backed by nearly half a century of hewing to the policy of doing things right even if they do cost just a bit more. And here's how an old saw proves it.

THE BASTIAN-BLESSING COMPANY
240 E. ONTARIO ST., CHICAGO

BASTIAN-BLESSING

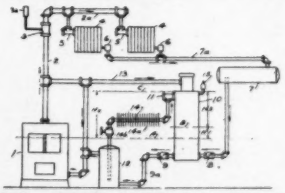
Manufacturers of approved dispensing equipment for nearly half a century.

New Ideas From Patent Office

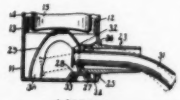
Heating Department

1,908,552. Method of Heating with Steam. Bo Folke Randel, San Diego, Calif.

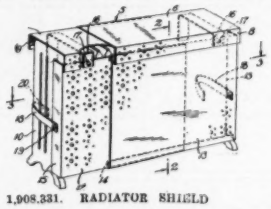
1,907,844. Air Valve for Radiators. William F. MacDonald, Bridgeport, Conn., assignor to Bridgeport Brass Company, Bridgeport, Conn.



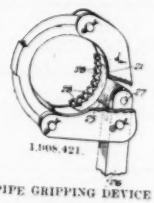
1,908,552. METHOD OF HEATING WITH STEAM



1,907,844. AIR VALVE FOR RADIATORS



1,908,331. RADIATOR SHIELD



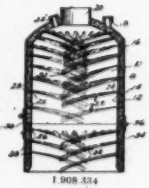
1,908,421. PIPE GRIPPING DEVICE

1,908,331. Radiator Shield or Cover. Aram Ehramjiaw, Arverne, N. Y.

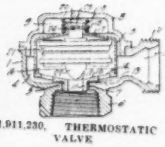
1,908,421. Pipe Gripping Device. Alfred G. Heggem, Tulsa, Okla.

1,908,334. Air Filter. Charles A. Etem, Kansas City, Mo.

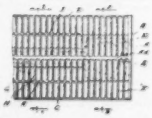
1,911,230. Thermostatic Valve. William T. Jones, Waban, Mass., assignor to Barnes & Jones, Incorporated, Jamaica Plain, Mass., a Corporation of Massachusetts.



1,908,334 AIR FILTER

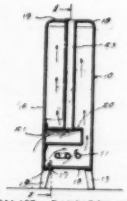


1,911,230. THERMOSTATIC VALVE



1,909,782. RADIATOR CONSTRUCTION

1,906,696. PIPE TONGS



1,911,197. RADIATOR FOR HOT WATER OR STEAM

1,909,782. Radiator Construction. James F. McIntire, Detroit, Mich., assignor to United States Radiator Corporation, Detroit, Mich., a Corporation of New York.

1,906,696. Pipe Tongs. Theodore L. Lynch, Southgate, Calif.

1,911,197. Radiator for Hot Water and Steam. Joseph H. Long, Cleveland, Ohio.

1,910,025. Atomizer with Cleaning and Flushing Attachment. Carroll E. Lewis, Minneapolis, Minn., assignor, by mesne assignments, to Lewis Air Conditioners, Inc., Minneapolis, Minn., a Corporation of Delaware.

THE "MODERN" RANGE BOILER

Pat. No 1853949

30, 40 and 50 Gallons
200, 250 and 300 lb. Test

In the above capacities the top and body of the "Modern" Boiler is formed from a single extra-heavy Copper Shell and drawn cold-seamless to the bottom, thus eliminating the top joint and the side seam and leaving only a bottom joint. The bottom head is hydraulically pressed on the shell and riveted securely with Copper Rivets closely spaced. Over the rivets a seamless copper band is spun and sweated, reinforcing the joint and making a solid construction which is impossible to come apart under any circumstance. Every boiler is reinforced internally and guaranteed against collapse. The interior is thoroughly tinned.

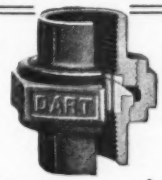
Sold Through Wholesalers Only

HAYES MFG. CO., Paterson, N. J.

Established 1870

Two Bronze to Bronze Seats

Two Bronze to Bronze Seats . . . accurately machined and carefully ground . . . protect the joint . . . assure freedom from leaks and corrosion. Pipe ends and nut of heavy air refined malleable iron. These features are the foundation for DART'S greater strength.



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Write for the DART *story.*

E. M. DART MFG. CO., Providence, Rhode Island
Sales Agents: The Fairbanks Company, New York Branches
Canadian Factory: Dart Union Co., Ltd., Toronto, Canada

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Triple Wear Wrenches

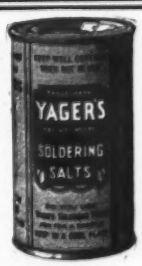
The Warnock wrench is easyto adjust. The strap is arranged in such a way that it can be drawn absolutely tight in *one* movement. Notice, too, that this strap is triple folded at the point of greatest strain.

For chrome, brass and nickel plated pipe

WARNOCK MFG. CO., Worcester, Mass.

YAGER'S Soldering Salts . . .

for all lead work



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Hudson, N. Y.

Sales Agency for Canada:
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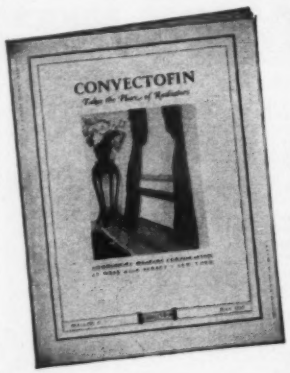

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By return mail you will receive Bulletin No. 6, shown at the left. It contains CERTIFIED HEATING DATA, *Checked and Certified* by the Frost Research Laboratories. At the same time, tell us your heating problems. Save money by installing CONVECTOFIN which Takes the Place of Radiators. We will gladly advise and quote.

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Warmth-Hospitality-Comfort-Economy! These are the things that make the Melbourne Hotel the unquestioned choice of every experienced traveller. You will do well to follow their example while in St. Louis.

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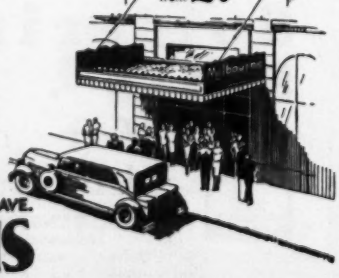
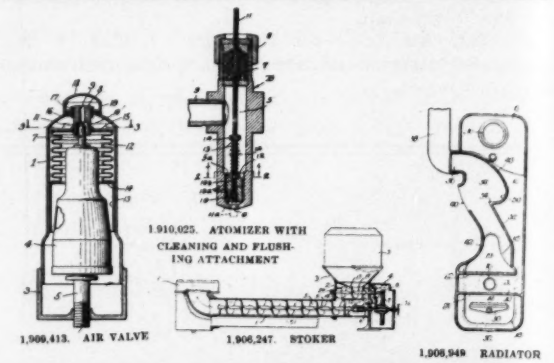


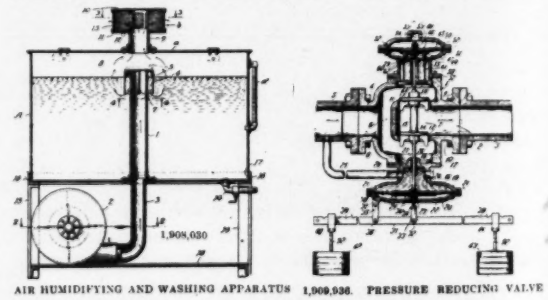
LINDELL BLVD. AT GRAND AVE.
ST. LOUIS

1,909,413. Air Valve. James K. Lund, Chicago, Ill., assignor to Dole Valve Company, Chicago, a Corporation of Illinois.



1,906,247. Stoker. Frank L. Buff, Wichita, Kan.

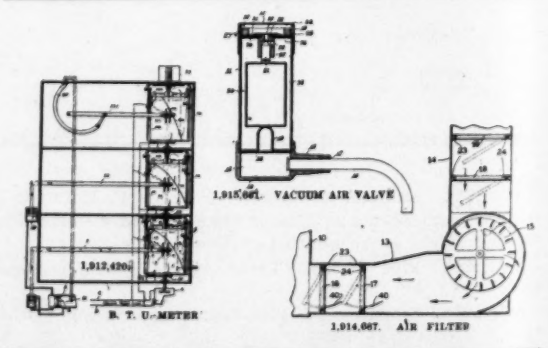
1,906,949. Radiator. Eugene V. Daily, Los Angeles, Calif., assignor to James B. Clow & Sons, Chicago, Ill., a Corporation of Illinois.



1,908,030. Air Humidifying and Washing Apparatus. Louis Larson, Oak Park, Ill.

1,909,936. Pressure Reducing Valve. Clayton A. Dunham, Glencoe, Ill., assignor to C. A. Dunham Company, Marshalltown, Iowa, a Corporation of Iowa.

1,912,420. B. T. U. Meter. Archer E. Young, Pittsburgh, Pa.

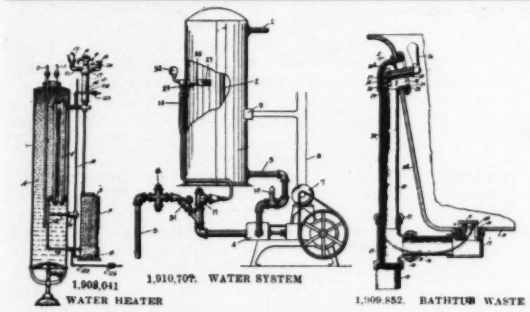


1,915,661. Vacuum Air Valve. William T. Gibson, Everett, Mass.

1,914,667. Air Filter. John P. Kolla, Holland, Mich., assignor to Holland Furnace Company, Holland, Mich., a Corporation of Michigan.

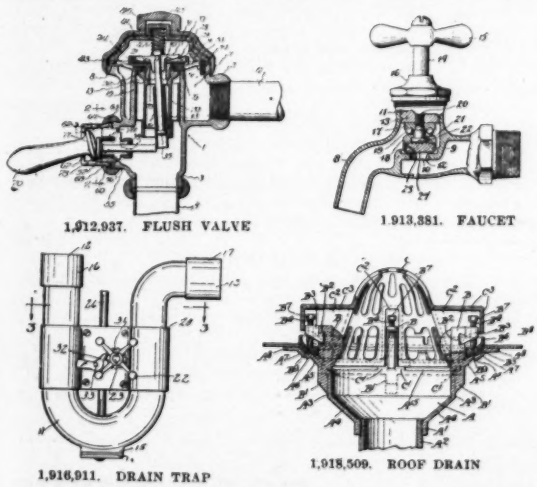
Plumbing Department

1,908,041. Water Heater. Walter G. Miller, Chicago, Ill.
1,910,707. Water System. Clark R. Mohr, Jackson, Mich.
1,909,852. Bathtub Waste. Harry W. Anderson, Chicago, Ill.



1,908,041 WATER HEATER — 1,910,707. WATER SYSTEM — 1,909,852. BATHTUB WASTE

1,912,937. Flush Valve. William B. George, Chicago, Ill.
1,913,381. Faucet. Michael J. Grass, Buffalo, N. Y., assignor to The David Bell Company, Inc., Buffalo, N. Y., a Corporation of New York.
1,916,911. Drain Trap. Charles N. Anderson, Toledo, Ohio.



1,912,937. FLUSH VALVE — 1,913,381. FAUCET

1,916,911. DRAIN TRAP — 1,918,509. ROOF DRAIN

1,918,509. Roof Drain. Paul M. Wilcox, La Porte, Ind., assignor to Wilcox Drain Corporation, La Porte, Ind., a Corporation of Indiana.

Boston, Mass.—The Downey Co. has moved its plumbing and heating business to the Chickering building at 791 Tremont street.

Detroit, Mich.—The plumbing and heating firm of McConachie & Reid, formerly at 8817 Mack avenue, has been dissolved and L. L. McConachie is now conducting a heating, ventilating, air conditioning and plumbing business under the name of L. L. McConachie Co. with office and shop at 1003 Maryland avenue in this city.

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You're just the man I wanted to see!"

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A UNITED HOTEL

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400 ROOMS-400 BATHS
Ideal location-Modern and fireproof-Large airy rooms and circulating ice water
$2.50 UP
For Delicious Food
THE TEA ROOM
AND MAIN DINING ROOM
SYLVESTER BEER, Managing Director

DAYTON, O.

CHICAGO BOOKING OFFICE
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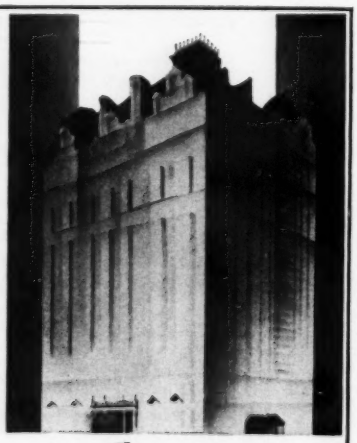

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CLAUDE H. BENNETT, General Manager.

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COLLEGIANA

Freshman (with his girl in his flivver): "You look lovelier every minute. Do you know what that's the sign of?"

Fair Co-ed: "Yeah. You're about to run out of gas!"

PROFESSIONAL

"I'm going out for a little while and I want you to be good until I come back," said mother.

"I'll be good for a penny," piped up her youngster.

"Now, see here, Billy, I want you to understand that you can never be a real son of mine unless you are good for nothing."

—The Humorist.

Foreman (to small son of one of his workmen who has met with an accident)—"When will your dad be fit for work again?"

Boy—Can't say for certain, but it will be a long time."

Foreman—"Oh, what makes you think that?"

Boy—"'Cause compensation's set in."

—The Locomotive.

One of the salesmen making his usual territory, and justifying his usual weather report, wrote—"I was struck by the beauty of the town," to which we overheard our treasurer comment—"Well, I hope she busted his nose, he's too fresh, anyhow."

—Durez Molder.

M. M.: "Did I bring your pipe wrench back last month?"

C. E.: "No, you certainly did not."

M. M.: "Now what am I going to do? I wanted to borrow it again."

—Powerfax.

"Why not try Allen's 'Kentucky Cardinal?" the salesman suggested. "That's a highly popular book."

"No," said the lady, "I don't care for theological stories."

"But the Cardinal was a bird."

"I am not interested in the scandals of his private life," said the woman as she walked out.

—The Kalends.

WHEN OIL WENT UP

Buncrust: "So our old friend became wealthy through a sudden upward movement in oil? Which stock did he buy?

Piebust: "He didn't buy any. A rich old aunt tried to start the kitchen fire with a can of it."

—Laughing Gas.

JUST LIKE HIM

Mr. Brown, here are the photographs of your son, Reginald."

Mr. Brown (admiringly)—"They are very good, very much like him. Are they paid for?"

Photographer—"They are not."

Mr. Brown—"That is still more like him."

—Photographic Times.

GOOD NEWS!

$3.00 and $3.50 with bath

Room rates have been reduced at Pittsburgh's finest hotel. • Nearly half the 1600 rooms are now $3 and $3.50. • It's a NEW DEAL! Every room with bath. • Under the management of Eppley Hotels Co.

HOTEL WILLIAM PENN PITTSBURGH

CLASSIFIED ADVERTISING

8 cents for each word including heading and address. Count seven words for keyed address. Minimum $2.00 for each insertion.

One inch $4.00. Cash must accompany order. Copy should reach us eight days in advance of publication date.

Situations Open

PLUMBING SPECIALTY SALESMEN

Experienced in rubber specialties. Only those calling on trade desired. We are filling eastern and other territories. Exclusive rights and liberal commission basis. Give complete details first letter. Koehler Rubber Company (NRA members), Cleveland, Ohio.

HEATING SALESMEN TO CALL ON trade: West Side of Chicago. Must be capable, aggressive, and acquainted with the heating trade. Company is well known. References required. Address Key 891, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

Situations Wanted

SALES MANAGER WELL KNOWN IN metropolitan area, among jobbers, and plumbing and heating trade, would like connection with manufacturer. Address Key 897, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

BOOKKEEPER, STENOGRAPHER, Typist: five years' experience with plumbing and heating concern, complete charge, trial balance, willing, dependable, references. Brooklyn, New York, resident. Address Key 894, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

POSITION WANTED: POSITION WITH manufacturer who desires intelligent representation among the Jobbers of Plumbing Supplies. Have years of experience and personal acquaintance with all Jobbers east of the Rockies. Highest Class References. Well qualified to get the business. Address Key 895, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

SITUATION WANTED — PLUMBER, lead worker, acetylene welder and brazer, steamfitter. Twenty years' experience. Will sell your merchandise. Go anywhere. Address Key 890, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

SALESMAN: DESIRES CONNECTION with manufacturer of plumbing or heating specialties covering New England States. Commission and drawing account preferred. Address Key 885, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

Representatives Wanted

RADIATOR SALES OPPORTUNITY. Strong established manufacturer. Outstanding new advanced type heating radiator. High grade, experienced sales representatives who can operate upon straight commission basis should write for complete particulars. State qualifications fully. Address Post Office Box 1222, Pittsburgh, Pennsylvania.

WANTED: MANUFACTURERS' REPresentatives for entirely new ball cock with instant appeal, and other brass items having exceptional merit. Commission basis. Address Key 892, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

WE CAN PLACE A NUMBER OF agents, without cost to them, provided they work with the heating trades and sell on a commission basis. The account is a concealed radiator or copper heater. Each successful applicant will be appointed exclusive representative. Write us your experience, other accounts handled, territory and references.—Advertising Agency Service, 45 Academy St., Newark, N. J.

MANUFACTURERS' REPRESENTAtive on commission basis for complete line manufacturer of sanitary pottery. Territories available: Albany, N. Y., and vicinity; Pittsburgh, including western Pennsylvania and West Virginia; also state of Iowa. Opportunity for producers. Reply with full details. Address Key 901, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

MANUFACTURERS' REPRESENTAtive calling on architects, engineers and specification writers with a line of drainage specialties. Generous commission. Address Key 900, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

WANTED FOR CHICAGO METROPOLitan area and other districts an active dealer or agency now handling household appliances, etc., to take on an exclusive distributorship for a complete line of first class gas fired boilers. Excellent proposition to right party. Address Key 899, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill. Give details and references.

Lines to Handle

MANUFACTURERS' REPRESENTAtive desires lines, plumbing or heating. Large acquaintance in metropolitan district. Address Key 896, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

Use this page to get what you want

If you are looking for competent employes; or if you contemplate a change in position, have a patent for sale; wish to purchase or sell a plumbing and heating business; second-hand machinery or tools; form a co-partnership, etc., your advertisement on this page will put you in touch with the people you desire to reach.

The cost of insertion is only eight cents a word and may mean many dollars to you.

EXIT

Price Selling

•

Quality and Price Being Equal

..... who gets the Business?

•

A successful, long established manufacturers' representative, enjoying the confidence and patronage of the leading plumbing and heating supply jobbers in the New York metropolitan territory, offers loyal, energetic and *productive* representation for several additional meritorious lines. Closest investigation invited. Address Key 898, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

For Sale

FOR SALE: COMPLETE SHEET metal, plumbing, roofing and pump shop tools. Will sell tools on inventory, or shop and good will in good location, north central Ohio. Address Key 893, "Domestic Engineering," 1900 Prairie Ave., Chicago, Ill.

FOR SALE — 6" JARECKI PIPE threading machine, direct motor drive, single phase, complete $125.00. Afgo Engineering Corp., 142 Fulton St., New York City.

Miscellaneous

PRINTING for PLUMBERS

OUR SPECIALTY

Letter Heads, Envelopes, Bill Heads, Blotters, Cards, etc., with or without cuts; also Contract Blanks, Time Sheets, Job Tickets, etc., carried in stock or printed to order. Prompt service; reasonable prices; samples with prices mailed.

Louis Fink & Sons Co., Printers
N R A Member
School Bldg., Laurel Springs, N. J.

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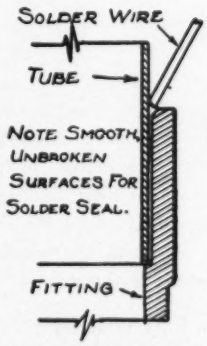
Horse Sense on this Question of Copper Fittings

There's no trick stuff about NIBCO Copper Fittings for drainage and supply lines. You never have to stand on your head to apply the solder at any particular spot—anywhere around the edge of the joint does the job thoroughly and perfectly. The entire depth of the cup presents a smooth, unbroken surface so that capillary attraction makes a solid and substantial joint when solder is applied. The uniform thickness of the cast wall carries the heat of the torch evenly to all parts of the joint. No fittings on the market provide a stronger or more easily soldered connection than NIBCO.



This drawing illustrates a section of a typical NIBCO solder connection. Note absence of any break in surfaces where solder is drawn by capillary attraction.

Our method is as old as the hills. We admit it. We're not trying to fool anybody with novel gimcracks that don't mean anything. Try and fool an old-time plumber on such a thing as a sweat joint! Horse sense answers with a horse laugh.

And about drainage fittings, especially—NIBCO offers the long turns which are required by many city codes. That's just one illustration of the enduring NIBCO policy: to provide copper fittings to *do the job*, properly and economically. Ask your jobber about NIBCO fittings. They are *still* leading in the great development of copper plumbing.

NORTHERN INDIANA BRASS COMPANY

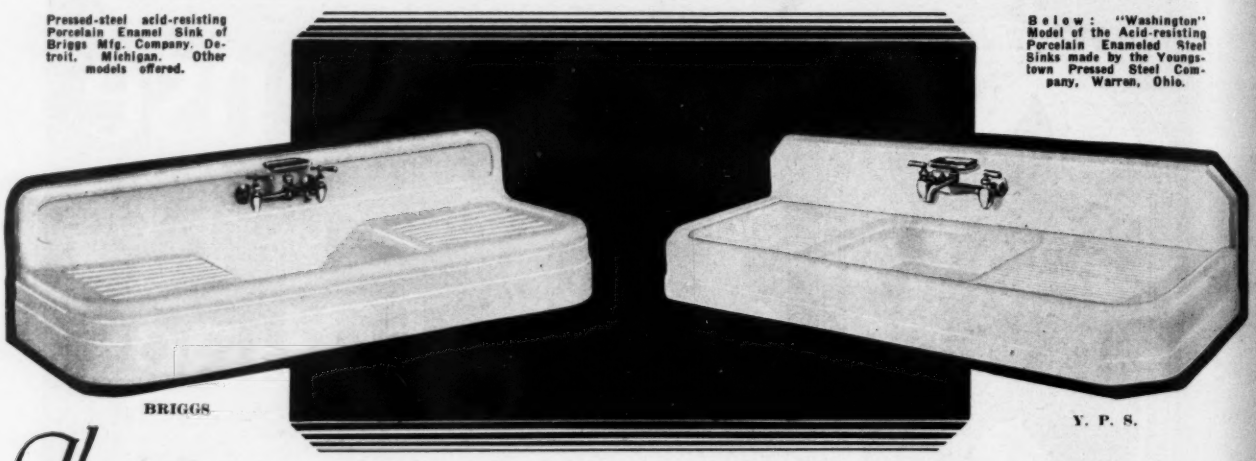
ELKHART, INDIANA

Makers of Ace, Duce and Jack Tank Fittings

NRA MEMBER U.S. WE DO OUR PART

Pressed-steel acid-resisting Porcelain Enamel Sink of Briggs Mfg. Company, Detroit, Michigan. Other models offered.

Below: "Washington" Model of the Acid-resisting Porcelain Enameled Steel Sinks made by the Youngstown Pressed Steel Company, Warren, Ohio.



The New Swing is toward Acid-Resisting

PORCELAIN ENAMELED STEEL

MODERN ONE PIECE PRESSED STEEL

PORCELAIN Enameled Steel Sinks, stamped in one piece, because of light weight, installation advantages, lower cost, etc., are rapidly presenting a new picture to the Plumbing and Heating Fields. This is the age of steel, and leading manufacturers will discard old customs and adopt the new by combining the superior qualities of porcelain enamel with the advantages of steel for their latest showings.

Porcelain Enameled Steel Sinks offer light weight, easier and more economical installation, attractive appearance, greater resistance to abrasive wear and acid stains, perfect adhesion, smooth surface and life-time new appearance.

We have had a part in this new swing, in supplying quality porcelain enamel and working with manufacturers of the beautiful new acid-resisting porcelain enameled one-piece steel sinks, such as illustrated above. We are able to do this with utmost satisfaction to manufacturers because of our long experience in enamel-making and extensive research facilities.

FERRO ENAMEL CORPORATION
Cleveland, Ohio, U. S. A.
MANUFACTURERS OF
PORCELAIN ENAMELS, FURNACES
Equipment and Supplies

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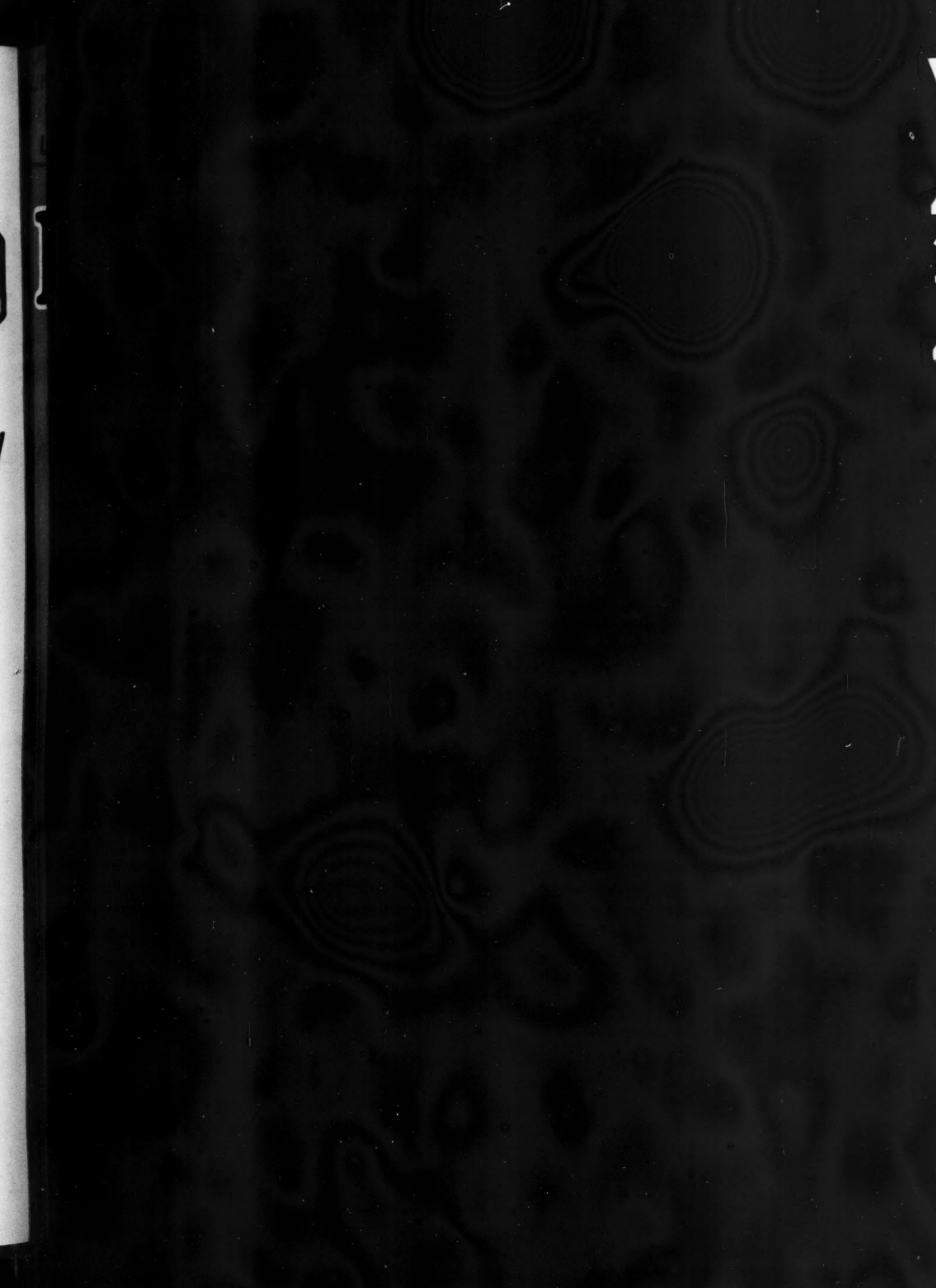
Don't fail to send for our attractive, illustrated booklet telling what you should know about porcelain enamel.